

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—18TH YEAR.

SYDNEY, SATURDAY, APRIL 25, 1931.

No. 17.

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PUBLIC HEALTH IN AUSTRALIA.

PART I.

THE FIRST FORTY-TWO YEARS.

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"The Colony has always been remarkably healthy: there are no diseases incidental to the climate." (McLeod.)

ALTHOUGH Captain James Cook landed in Australia in 1770 and buried a sailor who had died from pulmonary tuberculosis, there was no settlement until January 26, 1788, when the first fleet arrived. This expedition had been decided upon by Lord Sydney, Secretary of State for the Colonies, who, on August 18, 1786, gave instructions that

"arrangements were to be forthwith commenced for the settlement of 750 convicts, with the necessary staff and guards, at Botany Bay." (1) This expedition consisted of six transport ships, three store ships, and two ships of the Navy. The fleet sailed from Portsmouth on May 13, 1787, and arrived in Botany Bay individually between January 18 and 20, 1788. The ships subsequently moved to Port Jackson, where, on January 26, the Colony of New South Wales was founded. The settlement was established on a cove, into the head of which flowed a small stream, subsequently known as the Tank Stream. This Tank Stream was for the first years of the settlement the sole source of water supply.

The country on which the settlement was first established presented no feature of public health interest. The immediate locality, presenting sharp contours, was well drained and, having never been

the site of permanent human settlement, was virgin and unpolluted. The water supply, from a surface stream, was pure in quality and sufficient in quantity. Mosquitoes, always common in the bush and at Parramatta, did not appear in Sydney until about 1825 or 1826,⁽²⁾ but even if these had been present there are no grounds for assuming the existence amongst the aborigines of mosquito-borne disease. The climate was equable, without extremes, and the average temperature was high enough to obviate the necessity for close human aggregation to secure warmth.

The aborigines who inhabited the country before its settlement by the English colony, were a nomadic and scattered people, of small total number. They suffered from individual maladies, but there is no record of epidemic or endemic illnesses affecting them before European settlement. They did not constitute in any way a source of danger to the Europeans in the new colony.

At the beginning, food supply presented difficulties. The only food was that brought by store ships from England. In consequence, scurvy was common during the first years. Later, cattle were introduced and grain grown, providing abundance of fresh food.

The people who composed this colony consisted of civil and military staff and convicts. The actual numbers were as shown in Table I.⁽³⁾

TABLE I.

Type.	Males.	Females.	Children.
Civil and Military	233	34	23
Convicts	529	188	17

The total initial population, therefore, was 1,024.

An analysis of the sentences and crimes of these convicts gives rise to some interesting deductions. In no sense were they the "sweepings of the English gaols," as such a term would be understood nowadays. The criminal code itself, which was extant at the close of the eighteenth century, precluded this possibility. From the stringency of this very code it was almost impossible for the hardened criminal to escape the death penalty. It is probable that 83% of the first transportees were guilty of offences against the law for which in modern times they would be dealt with by the summary jurisdiction of a police court or pardoned possibly under a *First Offenders' Act*. Whatever vices the transportees showed in the new colony must largely have been due, not to any inherent tendencies, but to the hardships endured, the seeming utter hopelessness of their future and consequent abandonment.⁽⁴⁾

Governor Phillip, speaking of them, said in 1792:

I can recollect very few crimes during the last three years but what have been committed to procure the necessities of life.⁽⁵⁾

In 1802 free emigrant settlers first arrived under a system by which they were conveyed, and often

were entirely maintained after arrival, at the expense of the Government. Settlers arrived solely under this policy until about 1818, when the policy was discontinued. About this period, however, the new policy of giving grants of land to emigrants who possessed capital, was instituted.

The settlers who arrived under the first system were often men of character and ability. That this was not always so, however, is shown by Governor King's dispatches on this subject:

I have mentioned this circumstance to show how much Government is imposed on in the description of people who are recommended to be sent here as free settlers, without either property to employ others or abilities to work themselves.⁽⁶⁾

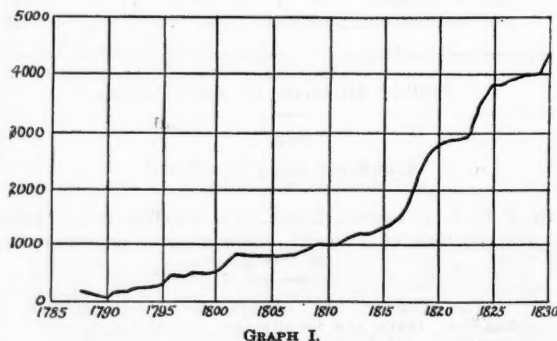
Under the second system the free settlers were of a much higher standing and, the capabilities of the colony having become better known in England, a steady stream of free settlers of an enterprising type and reliable character flowed into New South Wales.

The ultimate product of the factors affecting population may be indicated by quoting Cunningham, whose observations on all the matters of his time (1827) were valuable:

It is, besides, extremely curious to trace an intelligent, spirited, and well-principled population to sources so impure as the many criminals who have been outlawed hither, and whose offspring (although numerous highly respectable free settlers have come to Australia) still form the majority of our people.⁽⁷⁾

In no part of the world is to be found a more respectable and intelligent community wherewith to associate than in the Australian Colony, for few except men of intelligence and enterprise emigrate.⁽⁸⁾

The accompanying graph (Graph I) shows the increase in population during this first period. During the convict and free settler period the population increased slowly. By 1809 the population was 10,262, exactly ten times the original population. Between 1809 and 1830 it had increased from 10,262 to 44,588.



The diseases which affected the settlement during the first forty-two years of its existence are of special interest.

At the period when the first fleet left England the general conditions were very insanitary. Creighton⁽⁹⁾ gives a description of the insanitary conditions in the gaols of England which is revolt-

ing. Mead, in 1720, referred to existing conditions in this way:

For nothing approaches so near to the first original of the plague, as air pent up, loaded with damps, and corrupted with the filthiness that proceeds from animal bodies. Our common prisons afford us an instance of something like this, where very few escape what they call the gaol fever, which is always attended with a degree of malignity in proportion to the closeness and stench of the place.⁽¹⁰⁾

Typhus fever was equally prevalent upon overcrowded and insanitary ships.

One of the main objects of the British Government in the formation of the Colony of New South Wales, as expressed by the legislature, as well as by the leading philanthropists and the public press of the period, was:

To rid the Mother Country of the intolerable nuisance arising from the daily increasing accumulation of criminals in her jails and houses of correction.⁽¹¹⁾

Typhus fever was, in 1787, very prevalent in London. It might well have been expected, therefore, that these conditions would have produced some consequences in connexion with the transport of convicts from these overcrowded gaols, especially in the case of overcrowded ships.

During the earlier years of the settlement there were several occasions upon which the diseases associated with insanitary conditions occurred on vessels in transit to New South Wales and continued until arrival. In a few instances these diseases occurred in the form of horrible outbreaks and, as many sick were landed in New South Wales, certain types of infection were introduced into the colony.

Before the departure of the first fleet there was some discussion as to the nature of certain cases of sickness. One medical man stated that these were cases of typhus, but Surgeon White would not accept this diagnosis.⁽¹²⁾ There appears to be little doubt that there were enough cases of typhus (or typhoid) fever amongst the marines on the *Alexander* transport to cause considerable anxiety;⁽¹³⁾ this continued all the way to New South Wales. Between Portsmouth and Rio de Janeiro, that is, up to August 30, 1787, there were in the whole fleet eight cases of fever, five cases of dysentery, and one of *cholera morbus*. After leaving the Cape of Good Hope, that is, November 17, 1787, an epidemic of dysentery appeared among the convicts, which very soon made its way among the marines and "prevailed with violence and obstinacy until about Christmas." There was only one death during this outbreak.

After the landing all of the company of the first fleet appear to have remained free from diseases of epidemic character. The first dispatch sent by Governor Phillip (May 15, 1788) records:

The people were healthy when landed, but the scurvy has for some time appeared amongst them and now rages in a most extraordinary manner. Most of the people are affected and near 200 rendered incapable of doing any work.⁽¹⁴⁾

By November 16, 1788, Phillip was able to report: "Except the old, and those who brought incurable complaints with them, the people are very

healthy."⁽¹⁵⁾ The scurvy disappeared on the first approach of spring.⁽¹⁶⁾ The native sarsaparilla was used and proved to be powerfully antiscorbutic. An infusion of "wild myrtle" was used as an astringent in dysentery.⁽¹⁷⁾

The deaths amongst the convicts between the time of departure from England and November 16, 1788, were: During the voyage, 40; after landing, 49. During the same period nine persons other than convicts died.

During the first few months some intestinal disorder prevailed. The following is a contemporary description, dated May 5, 1788:

The principal disorder we suffer by here is the fever and flux jointly. This has carried off several; these chiefly convicts. It is frequently fatal, but, with good care, much oftener not so. There are various opinions about the cause, some attributing it to the water, some to the humidity of the ground, others to the season, others to the peculiarity of the constitution, and that either of these causes may produce it in many, while others, equally in the way of all, continue to escape entirely.⁽¹⁸⁾

It is clear from the above that the first settlers in Australia carried with them from England the infections of cholera, dysentery and typhus fever. In view of the confusion between typhus fever and typhoid fever, which then existed, it is safe to assume that the infection of typhoid fever was also present.

In the year 1789 no special incidence of disease occurred amongst the population of the settlement, the births far exceeding the burials.⁽¹⁹⁾ In this year, however, there was a very extensive epidemic of small pox among the aborigines, which first came under the notice of Europeans in April. Beyond the facts that this disease was attended by a very high rate of mortality amongst the aborigines, that it attacked a coloured seaman on His Majesty's ship *Supply* and no person amongst the colonists, and that it was extensively distributed amongst the aborigines over the south-eastern portion of the continent of Australia, there is little accurate information in the available records.

Governor Phillip discussed the possible sources of this epidemic in his dispatch of February 12, 1790:⁽²⁰⁾

Whether the small pox, which has proved fatal to great numbers of the natives, is a disorder to which they were subject before any Europeans visited this country, or whether it was brought by the French ships, we have not yet attained sufficient knowledge of the language to determine. It never appeared on board any of the ships in our passage, nor in the settlement, until some time after numbers of the natives had been seen dead with the disorder in different parts of the harbour, and two men with a boy of about eight years of age and a girl of eleven had been brought to the hospital with the small pox. Both the men died, but the boy and girl recovered. These people were brought up the middle and the latter end of April and the small pox never appeared in the settlement until the 2nd of May, when a man belonging to the *Supply* was seized with the disorder and died a few days afterwards; nor has it ever appeared in the settlement except on that man and the native who caught the disorder from the children.

This year, 1790, also saw the arrival of the "Second Fleet," comprising four ships: *Lady Juliana*, *Scarborough*, *Surprise* and *Neptune*.

The *Lady Juliana* brought out from England 226 women convicts, out of whom she had buried only five, though they had been on board for about fifteen months. The conditions on the other three vessels were very different.

Table II shows the mortality on the vessels during the voyage:

TABLE II.

Ship.	Total Convicts.	Died on Voyage.
<i>Neptune</i>	502	158
<i>Surprise</i>	256	36
<i>Scarborough</i>	259	73

These three vessels arrived in Sydney between June 20 and 28. By July 17 fifty further persons had died.

Governor Phillip in his dispatch of July 13, 1790, reported on these vessels as follows:

I will not dwell on the scene of misery which the hospitals and sick tents exhibited when those people were landed, but it would be a want of duty not to say that it was occasioned by the contractors having crowded too many on board those ships and from their being too much confined during the passage.⁽²⁵⁾

By the surgeon's returns of this day there are 488 under medical treatment; when the ships arrived we had not 50 people sick in the colony.

The nature of the sickness is described by two observers thus:

After the ship left the Cape of Good Hope a violent epidemical fever, together with the scurvy, appeared amongst the convicts, and every one was affected in a more or less degree.⁽²⁶⁾

Scurvy was not the only nor the worst disease that prevailed amongst them; some were exercised with violent fevers and others with a no less violent purging and flux.⁽²⁶⁾

The conditions existing on these vessels were such as to produce a feeling of horror at reading the accounts even now. The Reverend R. Johnson wrote:

The misery I saw amongst them is unexpressible; many were not able to turn or even to stir themselves, and in this situation were covered over almost with their own nastiness, their heads, bodies, clothes, blankets, all full of filth and lice.

It is hardly possible on the available evidence to do more than speculate as to the nature of this "violent epidemical fever." The conditions were such as to favour the spread of typhus fever. This seems to be the most probable of the "fevers."

The "Third Fleet," which arrived in September and October, 1791, had also a very considerable mortality. Phillip reported, in his dispatch of November 5, 1791, that out of 1,863 persons 199 had died on the passage. Those who were landed were emaciated and debilitated, the increased mortality in the settlement from this group persisting throughout the year 1792.⁽²⁴⁾

In the seven months prior to the arrival of this fleet in Sydney the deaths in the settlement were nineteen; from January 1 to December 31, 1792, there were 436 deaths. The nature of this sickness

is uncertain. As in the case of the second fleet, it is described as "flux and scurvy."

In 1792 the transport *Pitt* arrived, having had on board a fever which "had raged with great violence amongst the soldiers and seamen." The vessel called at St. Jago, and "scarcely a person escaped death who was watering on shore at that place."⁽²⁵⁾ Thirteen soldiers, seven seamen, twenty male convicts, and nine women had died during the voyage, and 120 male convicts were sick when landed. The convicts who were kept confined were not attacked, only those convicts who were released to help work the ship, were attacked.

The sudden appearance of this epidemic after leaving St. Jago and the reference to the severity of the attack amongst those who were watering on shore, suggest that the infection was received at this place, possibly from water or food. There is no evidence to show whether the 120 who were sick on arrival at Sydney suffered from scurvy or from this fever. The "malignant epidemical fever" may have been malaria, cholera, typhoid, typhus or some other variety. If it had been insect-borne, it is probable that the confined convicts would not have escaped infection. A considerable number of deaths continued to occur amongst the people from this vessel for some time after landing. It would appear that in less than nine months prior to December 8, 1792, 490 deaths had occurred out of a population of 4,693.⁽²⁶⁾

By the beginning of 1793 the health of the community had nearly returned to normal. Governor Grose reported in January that "the colony in general is healthy." No further evidence of the existence of "fevers" in epidemic form is noted, and in 1795 there were recorded only six deaths amongst the civil and military, three amongst the free people and 33 amongst the convicts. The causes of these deaths are not stated.⁽²⁷⁾

That other vessels had suffered, however, is clear from the records. The surgeon-superintendent of *The Boddingtons* reported that when he joined that vessel at Cork he found many of the convicts "very ill in fevers and dysenteries."⁽²⁸⁾ The vessel arrived at Sydney on October 12, 1793, in a notably healthy condition. In this vessel and the *Sugar Cane*, which arrived on September 17, 1793, only one person had died, and amongst those landed at Sydney scarcely any were sick. This immunity from sickness was attributed to the attention paid to the health and accommodation of the convicts and to the presence of two medical gentlemen—one employed by the Government and one by the contractor—on each ship. This practice of having an official surgeon on each ship arose in consequence of the great number of deaths which occurred in 1790 on the second fleet. The Government adopted the system of placing on board each transport a surgeon of the Royal Navy, vested with the general control of the convicts, and known as the surgeon-superintendent. He was authorized to take cognizance of every circumstance connected

with the treatment of the convicts—their rations, clothing, quarters and general discipline.

The records for the period 1795 to 1800 are incomplete, but some returns are available.

From September, 1795, until August, 1796, there was a uniform incidence of sickness with a small number of deaths showing neither any epidemic prevalence nor any special seasonal distribution. From August, 1797, the figures show an increasing amount of sickness with a sudden rise in April and May of 1798, steadily maintained into the early part of the summer of 1798-1799. The number of deaths declined again in the early months of 1799, reaching a more normal figure about April, 1799.

It may be noticed that this increased morbidity coincided with "an uncommon and tedious drought," during which there was "scarcely a shower of rain for ten months." This drought terminated in March, 1799.

The causes of death were not at this time recorded. The facts available in one case, however, suggest strongly that the disease was "typhoid fever," and in another instance it is recorded that death was the result of a "violent dysentery."⁽²⁰⁾ There is also extant one return of the assigned causes of deaths in hospital which include "dysentery, cholera morbus, fevers, consumptions, lues venerea, dropsy, epilepsy, iliac passion, and locked jaw."⁽³⁰⁾

A great increase in the number of sick and of deaths in July, 1799, was due to the arrival of the transports *Albion* and *Hillsborough*. These two vessels arrived in Sydney on June 29, 1799, having embarked 300 convicts in England. There had been such mortality in these vessels that only 205 of the convicts were landed at Sydney and six of these had died before July 27. The cause of this condition is stated to have been "fever, occasioned by ill-usage and neglect of cleanliness."

The Transport Commissioners held an official inquiry into the conditions on these vessels. Governor Hunter directly refers to the "fever" on these vessels by the well established name of "gaol fever." Sir J. Fitzpatrick, Inspector-General of Health at that time, reported that the fever was carried to the vessels by convicts from the Langstone Harbour Gaol, where the gaol fever "ragged with much violence" at the time of this transportation.

During 1800 the transport *Royal Admiral* had during the voyage an outbreak of "gaol fever." In 1801 the *Earl Cornwallis* had many deaths from dysentery. In 1802 the transports *Atlas* and *Heracles* suffered severely from dysentery, scurvy and typhus fever, the two ships losing between them 127 convicts out of 320 put on board.⁽³¹⁾

The condition of these transports on arrival led incidentally to what must be considered as the first record of quarantine medical inspection in Australia. On the arrival of ships with convicts, they were visited by the naval officer and surgeon who reported whether there was, or had been, any contagious disease in the ship.

In 1803 and again in 1804 Governor King referred to the good state of health generally enjoyed: "So much good health has never been known in the Colony."

The following vessels were affected with various disorders during the voyage: *Three Bees* (1814), typhus fever; *General Hewitt* (1814), dysentery and typhus fever; *Surrey* (1814), typhus fever; *Canada* (1815), scurvy; *Friendship* (1818), scurvy; *Minerva* (1821), scurvy; *Woodman* (1823), dysentery; *Ocean* (1823), scurvy.

In 1829 the Royal College of Physicians sent a series of questions, and Dr. Bowman and Dr. McLeod, of Sydney, sent comprehensive replies.⁽³²⁾ From these much information as to conditions at the beginning of 1830 can be obtained.

The population of the colony was as shown in Table III.

TABLE III.

Sex.	Under Twelve.	Over Twelve.	Total.
Males	2,835	24,776	27,611
Females	2,936	6,051	8,987

The great disproportion between males and females is a notable feature.

Concerning the proportion of annual deaths to the total population, Bowman wrote:

The proportion of deaths must for many years appear to be much greater in this colony than in old established countries, where the inhabitants are encouraged to emigrate. The number of convicts and emigrants annually sent here is very considerable, few of whom leave the colony; therefore, the number of deaths will for some time exceed the births; in consequence of a great extent of this territory being thinly populated, a correct register of births and deaths cannot be kept, especially in remote places in the interior.

McLeod, after reviewing the data for the previous nine months, estimated the ratio at one in sixty-three, or a death rate of 15.8%.

McLeod estimated the average height of the locally born whites as five feet nine and a half inches for males and five feet four and a half inches for females. This presumably applies to adults.

A combination of the replies given by the two medical men gives the following picture of the prevalent diseases:

There are no diseases incidental to the climate. The colony has always been remarkably healthy. New-comers are frequently attacked with dysenteric affections and the hepatic functions are very irregularly performed, especially in the summer. Diseases of a purely febrile character are not very common among any order of the community. July, August and September are the months in which fevers are most prevalent, and the simple continued is the usual form; such as occasionally resume a remittent type mostly affect children and elderly persons; among the middle-aged they are not so common; and intermittent as an endemic is entirely unknown.

The rapid and frequent changes of the winds and the great extent of forest land over which it blows may have some influence in preventing the recurrence of marsh fevers. To this may be added the general good ventilation of the dwellings, the exercise which is taken by people

in the open air, and the frequent bathing that is resorted to by all classes. It may also be borne in mind that one great predisposing cause of disease, arising from an inadequate quantity and an inferior quality of food, is not known here; while, on the other hand, the effects of intemperance and the dissolute lives of many are moderated by the salubrity of the climate.

Erysipelatous affections are common in summer and principally attack the young, but are never dangerous.

In April, 1794, inflammation of the eyes was observed for the first time and it was generally prevalent among all descriptions of people. It raged at first among children, but when it got into a house scarcely any person escaped it. Since that time the same disease has been very general at different times, prevailing in the months of November, December and January.

In 1824 mumps was epidemic, almost invariably with bilateral glandular involvement.

In July and August, 1820, an epidemic catarrh prevailed throughout the colony, there being hardly a house that had not cases of more or less danger. It proved fatal chiefly to infancy and old age.

Dysentery is the most prevalent and fatal disease to which the colonists are subject. Few newcomers escape an attack of this malady, and it carries off above one-half of the convicts, who die in the civil hospitals; the ravages of some years are much greater than others; 1788, 1790, 1791, 1799 and 1823 are years in which this disease was exceedingly severe and fatal.

In March, 1828, a kind of whooping cough made its appearance in Sydney and spread over the whole colony. It proved fatal to a few children; the numbers are very small compared to those attacked.

Consumption of the lungs (*phthisis pulmonalis*) is much more frequent than from the mildness of the climate might be expected, and more in advanced life suffer from this disease than in England. It is remarked that in people who arrive in this colony labouring under this complaint, it runs a much more rapid course than it is observed to do in colder climates.

Some of the case books of the Sydney Hospital have been preserved. These cover portions of the years 1808-1809 and 1817-1818. It is obvious from these that the most prevalent conditions were dysentery and venereal diseases. Speaking of the period 1816-1819, Watson says:

Dysentery was the most prevalent disease, and recurred at regular seasons. It was ascribed to diet, water, and the conditions of life, but many cases were probably enteric fever.⁽²⁰⁾

Dealing with the period 1819 to 1836, Watson reviews the course of the principal diseases.

Dysentery remained the most prevalent disease, and in the fourteen months from October, 1819, out of 124 deaths in the hospital 64 were due to this disease. Of other diseases admitted, rheumatism, venereal disease and "dropsy" were almost as common. An annual cycle of ailments was observed: in the summer months, erysipelas was prevalent, especially among the young; in November, December and January, ophthalmia, taking chiefly the form of simple conjunctivitis, recurred, and was ascribed to mosquitoes and flies; while in July, August and September, simple continued fever used to attack chiefly old people and children. In July and August, 1820, an "epidemic catarrh" raged throughout the Colony and a large number of cases were admitted to the hospital; this disease, from the symptoms described, was undoubtedly influenza, and a second epidemic of the same disease recurred in November, 1825. In 1824 mumps was epidemic, and the complaint took a troublesome form, affecting both sides with a troublesome suppuration. In 1825 intermittent fever first appeared and in March, 1828, whooping cough was epidemic—this was its first appearance in the Colony; it was introduced on the ship *Morley*.⁽²⁰⁾

The gum of the green wattle (*Mimosa decurrens*) and a decoction of wattle bark (*Mimosa longifolia*)

were found to be very efficacious in the treatment of dysentery and of diarrhoea.

The appearance of whooping cough was reported by Governor Darling in his dispatch of August 28, 1828. The presence of the disease on board was not reported by the ship's officers and it was not discovered that the disease had prevailed on board until there had been a free communication with the ship, though the children of some of the soldiers were at the time suffering from its effects. The vessel was kept in quarantine until danger had ceased, but, notwithstanding this precaution, the disease was very general in the colony and several children died.

McLeod records that:

The medical profession differed much in opinion, not only concerning the origin, but the specific characters of this complaint.⁽²⁰⁾

Cunningham, Surgeon of the Royal Navy, lived two years in New South Wales and in 1827 wrote an account of the colony. He had "travelled over a considerable portion of it," and therefore provides in his observations a very general survey of the conditions.

The extraordinary healthiness of the climate of New South Wales must be of no trifling importance in the eyes of a European, considering how unhealthy most other countries are. Intermittents, remittents, typhus, scarlet fever, small pox, measles, whooping cough and croup are here unknown. Some few cases allied to remittent and continued fever have certainly been observed, but nothing decidedly of that nature. Dysentery is the most prevalent and fatal disease we have; yet deaths even from this cause are exceeding rare among the sober-living portion of the community and far from common even among the debauched, with whom dropsical affections are somewhat frequent, as may be expected. Dyspeptic complaints are generally aggravated in the low, warm portions of our country, but relieved by the free, dry air of the uplands. Children are very subject to the teres or round worm, so common in warm climates; and on reaching the age of puberty phthisis is liable to supervene from the rapid sprouting out in stature of our youths at this period; but the European phthisis is uniformly cured, or at least relieved, by a removal hither, if early resorted to.

An epidemic influenza carried off a number of the old Europeans some years ago and also not a few of the aborigines, while many of our younger individuals occasionally feel the effects of it to this day. It appeared at the time, or immediately in the rear of a hot northern wind, the symptoms being violent headaches, cough, sneezing and inflamed eyes, with a quick pulse and other general febrile concomitants. This year (1826) it has again fatally visited the colony; an inflammation of the eyes, called "the blight," often follows, too, the same wind. The lower palpebræ are the chief seat of the disease. The winds that cause this ophthalmia occur about October and November. This common disease is more troublesome than severe, being mild in the symptoms and generally very easily remediable. True syphilis among the whites, as far as I have heard, appears to be unknown; but gonorrhoea is exceedingly common and very virulent while it lasts, though always yielding readily to low diet, rest and frequent ablutions.⁽²⁰⁾

Small Pox.

Evidences of the outbreak amongst aborigines in 1789 have been found in New South Wales, Victoria and South Australia, but the epidemic appears to have subsided or at least been latent enough to escape remark until 1829 or 1830. There are several authoritative references to an epidemic

about those years, which was recorded more especially from the Lachlan and Murrumbidgee districts, but in all probability extended also into Victoria and along the Murray River as far as South Australia. Bennett states that this outbreak first came under notice about August, 1830; near the River Castlereagh, but it had been reported among the tribes to the northward six months earlier.⁽³⁶⁾ Some white people were infected.⁽³⁷⁾

In the year 1803 Governor King called the attention of the Secretary of State for the Colonies to the desirability of vaccination of the population of the colony and asked that some vaccine matter might be sent. The Royal Jennerian Society, which had just been established in England, forwarded to the Governor of New South Wales a supply of vaccine matter for inoculation. This arrived in Sydney by the transport *Coromandel* on May 7, 1804, and children were at once vaccinated. The first vaccination was done between May 8 and 12. By January 19, 1806, over 1,000 persons had been vaccinated. The total population of the colony at that time was almost exactly 7,000, of whom approximately 1,300 were children.⁽³⁸⁾ The vaccination was, during the same period, performed on many of the residents of Norfolk Island and Tasmania.

Measures of Sanitation.

Apart from such ordinary measures of cleanliness as would spontaneously be taken by individuals, there seems to have been no organized measure of sanitation. No information is available from the records concerning methods of disposal of excreta. It was, however, found necessary at an early stage to safeguard the water supply of the settlement. The following is a copy of the first legal order relating to the public health in Australia:

Government and General Orders.

22nd October, 1795.

Public Nuisances.

It having been represented to the Governor that the people who have been allowed to occupy huts on each side of the stream which supplies the town of Sydney, have opened the paling and made paths to the water from each hut, and have built pigsties at the rear of them, by which in rainy weather a quantity of filth must run into the stream, His Excellency thinks it necessary to give this notice: That, after this Order, any person found using a path from the house to the stream, or keeping hogs in the neighbourhood thereof, or opening a passage through the paling, will be removed, and the house pulled down.⁽³⁹⁾

It is clear that this order was not fully effective, as it was necessary to issue on January 25, 1796, a further order, as follows:

Public Nuisances.

25th January, 1796.

It having been represented to the Governor that notwithstanding the Order of the 22nd October, strictly forbidding those who occupy huts near the stream of fresh water that supplies the town of Sydney from pulling down paling or keeping pigs near that stream, there are some who, in open defiance of that Order, do not only open the paling, but with dirty vessels take the water they want above the tanks, and thereby

disturb and thicken the whole stream below, the Governor thinks it necessary to give this information to every description of people, that he expects when an Order is given it is to be obeyed. If, therefore, any person is hereafter known either to pull down or open the paling round the stream, or to dip their water above the tanks, they will be immediately confined and punished in such manner as their disobedience of this Order shall deserve.⁽⁴⁰⁾

On May 2, 1797, an order referred to the possible relationship between pollution of the Tank Stream, the main water supply of the settlement, and intestinal diseases. This order was as follows:

2nd May, 1797.

The paling of the spring, a work of much advantage to the health of the inhabitants of Sydney, being now completed, this public notice is given that none may plead ignorance. Whoever shall be known to loosen or take down any of the paling at the bottom of those gardens which are near the spring, or any part of that which surrounds it, for the purpose of getting fresh water without going to the tanks for it, or for any other purpose whatever, the house to which that paling belongs, or is nearest to, shall be immediately pulled down, let who may be its owner; and whoever shall be known to take water from the stream in any other way than at the tanks will be secured and carried before a magistrate, who will order that punishment which a disobedience of Public Orders and regulations may deserve. Particular persons will be directed frequently to inspect the fences all round the streams: it will therefore be necessary that all who live opposite or near it should every day examine the fences of their gardens, keep them in constant repair, and endeavour to prevent that filth and dirt which has so often been found in and about the tanks, and which may have been the chief cause of some of those fluxes and other disorders of which several have lately died.⁽⁴¹⁾

Further orders on this subject were issued on December 20, 1798, and January 25, 1799. In 1803 a penalty of twelve months' imprisonment with hard labour was imposed for the offence of polluting the Tank Stream.⁽⁴²⁾

The question of water supply for the City of Sydney became acute in 1825. The report of June 28, 1825, described the existing supply as follows:

Sydney is at present dependent for water on the Tanks in the vicinity of the Lumber Yard, or Private Wells, and on the Swamps and Lagoons near Town, from which last it is brought in barrels at a great expense. The Tanks, from their low situation, collect the water which falls upon the surrounding slopes. The water is so contaminated by impurities from the streets and other sources, as to be unfit for almost every other purpose.

A system of piped supply to a service reservoir with reticulation distribution was recommended and ultimately adopted.⁽⁴³⁾

In 1825 complaints were made of the great nuisance from the slaughter houses near Parramatta, where "the accumulation of filth becomes so offensive as to annoy the whole neighbourhood."⁽⁴³⁾

The Introduction of Quarantine.

The first port regulations were promulgated on September 18, 1800, but neither these nor the later regulations of 1802 or of 1818 contain any reference to quarantine procedure.

On May 26, 1804, a proclamation was issued providing that a quarantine of fourteen days should be performed on all vessels from New York State. This was required on account of "an infectious distemper

then raging in the State of New York." The place of quarantine was Bradley's Head.

This proclamation was merely a repetition of a proclamation issued in England on account of the existence of yellow fever at New York.⁽⁴⁴⁾

On January 8, 1805, the vessel *Richard and Mary* was quarantined "till further orders," as the crew were "infected with a dangerous fever."⁽⁴⁵⁾

The *Bussorah Merchant* arrived in July, 1828, and was quarantined on arrival, several cases of small pox having occurred during the passage from England—"a circumstance unprecedented since the formation of the colonies."⁽⁴⁶⁾ In 1830 the *Mermaid* was quarantined for the same reason. In the case of the *Bussorah Merchant* the captain and surgeon of the ship did not, on arrival at Sydney, report the fact of these cases having occurred.

The General Course of Mortality During the Period.

The records of mortality during the earlier years of the settlement are very incomplete. It has already been stated that soon after the arrival of the first fleet, scurvy was very prevalent, but had disappeared in the following spring. The colony remained healthy until 1790, in which year the second fleet introduced large numbers of sick and resulted in many deaths. Conditions again became normal until the arrival of the third fleet, which indirectly resulted in 436 deaths during 1792. In 1793 the colony had again become healthy. In 1795 there were only 42 deaths. The available information may be tabulated (Table IV).

TABLE IV.

Year.	Numbers of Deaths Recorded.	Population.
1792	436	3,264
1795	42	3,514
1796	46	3,579
1797	83	3,466
1798	70	4,100
1799	66	4,344
1800	N.A. ¹	4,688
1801	N.A.	5,088
1802	155	5,217
1803	58	5,945
1812	172	7,014
1814	197	7,061
1815	190	7,040

¹ N.A.—Not available.

In the year 1799 the transports *Albion* and *Hillsborough* again brought diseases which increased the death rate. From September, 1800, to August, 1805, there were 468 deaths in all. In 1804 a good state of health prevailed.

The general state of the colony in 1812 was stated by Governor Macquarie to have been excellent.

There was no systematic collection of mortality statistics during this period. By an order dated January 31, 1810, clergymen were required to make regular returns of all deaths in their respective districts.

An order of July 27, 1811, required the "Principal Surgeon and Assistant Surgeons to make regular quarterly reports to the Governor of all deaths or

casualties in their districts." They were not required to state the cause of death.

The limited value of these returns is made clear by Governor Macquarie's statement on November 17, 1812:

With respect to the departures and deaths of convicts and settlers I have to inform Your Lordship that no regular account of these circumstances has ever been deemed necessary to be kept here in a separate or distinct form. The deaths can only be collected from the reports of the chaplains, and until after my arrival many of the interments took place without the attendance of the chaplains, or even the decency of carrying the bodies to the regular prescribed burial grounds which were at the time of my arrival only three in number, *viz.*, Sydney, Parramatta and Windsor; the consequence is that no registration of these events could possibly take place, and even now the returns made by the chaplains are not sufficient to account for all the deaths.⁽⁴⁷⁾

Erection of a Hospital.

The first hospital was erected as soon as the settlement was formed, at the beginning of February, 1788. The contract for building a permanent hospital—the present Sydney Hospital—was signed in October, 1811.

Tasmania.

The Colony of Van Diemen's Land had been founded by the military post of August, 1803, consisting of a small number of persons. In January, 1804, a convict settlement was formed. The estimated population was 558 in 1804. In July, 1804, l'Anson, Assistant Surgeon of the Settlement, reported that scurvy, diarrhoea and catarrh were the prevailing diseases. In a return of dead and sick between August 9 and November 9, l'Anson reported 11 deaths (nine of scurvy) amongst 36 cases, of which 21 were scurvy and five diarrhoea. Vegetables were found difficult to grow and kangaroo meat was issued as soup with rice and such vegetables as could be obtained. Collins, in November, 1804, reported that "many have been preserved by the adoption of this measure."

In January, 1805, Colonel Collins, who was in charge of the settlement, stated that "the people are recovering from the bad state of health" they were in at the time of his last report. The disease was scurvy. The records of the earlier period, although extant, have not yet been fully examined and classified. Reference may be made, however, to the second general order issued by Collins, dated February 21, 1804, which had reference to the water supply of the settlement:

The Lieutenant-Governor having at length been enabled to fix the settlement advantageously and in a situation that appears to be blessed with that great comfort of life, a permanent supply of fine running water, cautions the people against polluting the stream by any means whatever. A proper place for them to water at shall be pointed out and he positively forbids them going into or destroying the underwood adjacent to the water, under pain of being severely punished.

The population increased from 177 in 1803 to 24,279 in 1830.

No information is available which would indicate any public health feature in Tasmania distinguish-

ing the course of events in this colony from that in New South Wales. When the records come to be systematically examined, it may, perhaps, be found that incidents of special interest occurred.

The following deaths are recorded: 1810, 11; 1811, 17; 1812, 6; 1814, 15. The records of the hospitals show that from 1824 to 1830 intestinal disorders were especially prevalent.

Melville Island.

In 1825 scurvy made its appearance among the prisoners and soldiers in the settlement on Melville Island (Northern Australia).

The Forms of Government.

The first settlement at Sydney was composed of three elements—military for guard and defence purposes, civilian officials for administration, and convicts. The government of the settlement generally was entrusted to the Governor, but the command of the military forces was independent of the Governor. Under Governor Phillip's strong administration no difficulties arose, but later there was serious conflict. At first every person in the community was, by reason of his status, under either military or penal discipline. Phillip, realizing the probable advantages to the colony of free emigrants, recommended the Government in England to send such to the colony. This recommendation was adopted and several families were sent out in 1796. As years elapsed many of the convicts, having completed their sentences, became free, but, unable to bear the expense of return to England, remained in the colony. Some of the military also chose to remain as free settlers. The system of free settlers sent out at the expense of the Government was discontinued about 1818; but, towards the close of Macquarie's administration, the capabilities of the colony became better known and a tide of emigration, including a considerable number of capable and reputable persons, commenced.

For the first thirty-five years a large part of the system of government was unconstitutional. During this period there were two serious defects; the powers of legislation and taxation assumed as autocratic powers by the governors were illegal and the whole administration of civil justice was unauthorized by Act of Parliament. Exclusive of the military and civil staff, in 1790 about one-fifth, in 1810 about one-half, and in 1820 17,391 out of a total of 30,140 of the population were free. It is remarkable, therefore, that the system was tolerated for so lengthy a period without serious protest. Nevertheless, this patriarchal form of government, suitable enough for a small convict community, gradually became difficult. The open challenge of authority which was definitely given by the officers of the New South Wales Corps, revealed many defects in this administrative system, and the growing dissatisfaction was indicated in 1807 by Bligh's report that "the superior people now look with concern on the civil and criminal courts as established." In 1809 a proposal was made within the Colonial

Office that a legislative council should be established in New South Wales. During Macquarie's term of office the extremes to which the power of a governor might be extended were demonstrated, the necessity for reform was constantly agitated, and the lime-light of competent legal criticism for the first time was thrown on the principles and details of the administration of the colony. In 1814 three courts of civil judicature were established, but these, like the original instructions to the governors, were established without the authority of an Act of Parliament. Even with these courts the legislative authority was still the Governor, who exercised powers as large as those of Parliament—"quod gubernatori placet, legis habet vigorem." This attitude aroused vigorous opposition. Ultimately, after special inquiries by Commissioner Bigge, it was decided to create a legislative council. This was done by the New South Wales Act of 1823, and the council was created in that year. This Council passed no act relating to public health before 1832. There was an act relating to slaughtering, but this was designed to prevent cattle-stealing.

Macquarie's government was commenced under the most favourable auspices. For the first time, the Governor-in-Chief held in his own hands the executive command of the colony and the military command of the troops. By this means the old antagonism between the executive and military powers was modified. This antagonism had been the principal factor in causing unrest and discontent in the colony since the days of Governor Phillip. The English Government realized that a change in the form of the administration was necessary. The system based on the fundamental principles of a military occupation was no longer tenable, and it was necessary to formulate a new constitution, giving extended powers and rights to the civil community. The act of 19th July, 1823, constituted courts, trial by jury, and created a legislative council in New South Wales.⁽⁴⁸⁾ It also provided for the separation of Tasmania as a separate colony with distinct jurisdiction. The community thus, by 1830, had become transformed from a penal settlement into a thriving colony with all the civil rights, problems, and responsibilities of a mixed community in which the free citizen was in numerical majority and was far the most important element and in which a sense of communal responsibility had developed.

Review of the First Forty-Two Years.

This introductory period of Australian history presents to the student of public health an absorbing picture showing progressive presentation in each of the major public health problems. A community, taken for the most part from a grossly insanitary environment infected with typhus fever, cholera, dysentery, typhoid fever, tuberculosis and venereal diseases, was landed after an eight months' voyage in a country free from all diseases or unhygienic conditions. The community was under the control of a governor whose commission contained no refer-

ence to the health of the people entrusted to his care. This community experienced scurvy from lack of proper food, carelessly polluted its own water supply, ignored exhortations to cease such pollution, and compelled the enactment of increasingly stringent legislation designed to prevent this danger to their own health, which, of their own volition and by their own self-restraint, they should have made impossible. Slaughter-houses became a nuisance. An outbreak of small pox occurred, the origin of which could not be traced—a vessel arrived on which there had been during the voyage an outbreak of small pox. On various occasions vessels arrived carrying infection from other countries. An ordinance prescribing certain quarantine measures was slavishly copied from English precedent without any local application. Later, imminent danger from infected vessels and the concealment by the ships' officers of the occurrence of infectious disease on their vessels resulted in the application of rational quarantine measures.

The intestinal infections, invariably associated with the absence of an ordered system of insanitation, became endemic. Venereal diseases were widely distributed throughout the community.

Whooping cough, mumps and influenza were introduced into a non-immune community and exhibited a special severity.

The commercial practice of unscrupulous transport contractors and their complete disregard for human health and life, expressed in overcrowding, absence of proper food, and lack of medical attention and comforts on the transports, produced typhus fever and appalling sickness and mortality. This sickness and mortality did not occur when the transports were properly supervised before departure and throughout the voyage by men with training, knowledge and recognized authority.

Vaccination was introduced almost as soon as it was accepted in England. Parasite worms accompanied their human hosts from England. An official system of registration of deaths was introduced.

If there be added to these features the conflict between different departments of government and the gradual establishment of the will of the more enlightened and progressive people in the forms of government, there is presented a picture of public health problems and administration which could not be more accurately or vividly compiled on any imaginative basis.

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PSYCHIATRY AND MEDICINE¹

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To many of those present it may come as a surprise to find an hour set apart for psychiatry in the programme of this reunion. Not so very long ago the activities of psychiatry were limited to the

¹ Read at the first annual reunion of the Royal Prince Alfred Hospital Residents' and Ex-Residents' Association, October 7 to 11, 1930.

care of the insane in asylums and both teaching and popular opinion maintained the attitude that mental disorders were self-contained and separate from other varieties of disease. The reasons for such an attitude, while they are of historical interest, need not detain us longer. Suffice it to say that the preoccupation with structural abnormality which characterized the medical science of the day, and the failure to satisfy the demand for a demonstrable pathology as the causation of mental disorders contributed largely to the survival of the mediæval conception of mind "functionally" disordered from "mental" causes. Thus psychiatry claimed a closer kinship with philosophy than with medicine and the greater part of the older psychiatric text books was devoted to disorders of "intellect."

The foundations of modern psychiatry may be said to have been laid by an asylum physician, Henry Munro, who put forward in 1851 the theory that insanity "results directly and entirely from excessive depression of the nervous centres of those higher faculties, or partly in an indirect manner from nervous energy being abstracted to other parts which are in more violent exercise at the time." This view was elaborated by Hughlings Jackson in his conception of the dissolution of functional levels in nervous diseases. "I submit," said Jackson, "that disease only produces negative mental symptoms answering to the dissolution and that all elaborate positive mental symptoms, illusions, hallucinations, delusions and extravagant conduct, are the outcome of activity of nervous elements untouched by any pathological process; that they arise during activity on the lower level of evolution remaining." Also: "There is a defect of consciousness significant of dissolution of the topmost layer of the cerebral cortex along with the rise of a certain kind of ideation significant of increased activity of the second layer. The double condition is roughly analogous to ordinary sleep with dreaming." Jackson pointed out that mild dissolution might be accompanied by "forgetfulness, lack of resolution, lack of precision in expression," while in deep dissolution there may be a "reduction towards a 'general personality,' in which individual peculiarities are effaced, a reduction towards what is common to the race." Jackson also stressed four factors in the causation of the insanities: (i) Different depths of dissolution of the highest cerebral centres, (ii) different persons who have undergone the dissolution, (iii) different rates at which the dissolution is effected, (iv) the influence of different local bodily states and of different external circumstances on the persons who have undergone that dissolution.

We may still look to these four factors as the "law and the prophets" in the ætiology and symptomatology of mental disorders. The clinical conditions which come before the psychiatrist may conveniently be described in terms of: (i) the degree of failure of adaptation or of regression to more primitive, inferior functional levels (dissolution);

(ii) the personality of the patient, his inherited and acquired psycho-physical dispositions; (iii) the rapidity with which the dissolution occurs; and (iv) the influence of the vegetative mechanisms of the body and of the environment upon the nervous system.

Time does not permit me to do justice to Sir Henry Head's brilliant restatement of Jackson's principles, but I should like to call your attention to a quotation from his monumental work on aphasia. "Every aspect of mental activity is based on a multitude of conscious and unconscious processes which as the result of a series of integrations culminate in a unitary response adapted to the total situation."

Now what we have to deal with in psychiatry is failure of integration and the consequent inability of the individual to adapt himself to the total situation. Our patients come to us because they are unable to face responsibilities and to meet the demands made upon them as members of a social group. The more we can understand about the forces acting within and upon the organism, the better shall we be in a position to devise the means for a restoration of the normal capacity to react. This is indeed the essence of modern dynamic psychiatry. Kraepelin laboured to reduce to some sort of system the heterogeneous types of disordered conduct found in mental hospitals and psychiatric clinics and described a number of mental "diseases" according to ætiology, course and outcome which still form the substance of psychiatric teaching. Now, while Kraepelin paid great attention to the stages in the development of the neuroses and psychoses and made statistical analyses of signs and symptoms, his method remained essentially descriptive, that is, he made little attempt at any analysis of the dynamics of these conditions and rather spurned the investigation of subconscious motivation. To Janet, Freud, Jung and Adler is due the credit for venturing beyond the fields of observation and classification of symptom complexes to the investigation of the background of the patient's personality.

To the psychopathologist the patient comes, not with a disease, but with a history, the details of which must be evaluated and placed in their proper setting in order that the causes of maladaptation may be recognized and removed. How that history is to be obtained, whether major importance is to be attached to the products of the patient's introspection as against more objective methods, is a question which is still open to discussion. As is well known, the Freudian method consists in the investigation of the patient's reminiscences with the object of ascertaining the point in his life story at which there has occurred the misdirection of *libido* or vital energy. Particular attention is given to the investigation of processes which lie beneath the threshold of consciousness, in the so-called unconscious mind, which, according to the Freudian view, is a sort of Black Hole of Calcutta, containing a crowd of malcontents who menace the stability of the body politic and who from time to time and

in devious ways succeed in exerting their baneful influence beyond the prison bars. And when the vigilance of the guard is relaxed, the prisoners steal forth and disturb the sleep of the law-abiding citizens and provoke dissensions in the State. Such is the theory of the unconscious, the censor and repression outlined in phraseology hardly less figurative than that which adorns the pages of Freudian literature. It is unfortunate that the Freudian theories have been expounded in these fanciful ways in terminology which is more in keeping with romantic literature than with science. Whether we accept or reject his teaching, credit must be given to Freud for shifting the focus of attention from structure on to function in the investigation of mental disorders. And by "structure" I mean not only the pathology of bodily tissues, but the description of a patient as a disease with certain symptoms and signs in cross section, having little regard to the historical background out of which the present state has developed. It is interesting to note that in his "Introductory Lectures on Psychoanalysis" Freud writes:

The edifice of psycho-analytic doctrine which we have erected is in reality but a superstructure which will have to be set on its organic foundation at some time or other; but this foundation is still unknown to us.

Now the whole trend of modern psychology and psychopathology has been to look beyond mere states of mind to the actual motivation of behaviour. Thus the study of instinct has almost assumed the importance once given to intellect by the older academic psychologists. *Homo sapiens* no longer maintains that air of lofty detachment from the rest of creation which characterized, for instance, the philosophy of Descartes. Far from god-like reason being the ruling force in our behaviour, we now recognize that the human organism is working out its salvation on much the same lines as creatures lower in the evolutionary scale. Adequate adaptation depends on the harmonious cooperation of all the different parts of the organism, including the proper domination of the highest functional level, consciousness, or whatever else we may term it, over lower mechanisms. Yet, though consciousness may direct, there is a motive force, a *vis a tergo*, which is claiming the attention of students of normal and morbid behaviour to an increasing degree. The late Henry Maudsley, who had such honoured associations with this continent, constantly urged the desirability of a more biological approach towards the study of psychiatry. His point of view is fairly presented in the following quotation from one of his works:

That the whole body enters into the constitution of every mood, thought and feeling is nowise the extravagant statement which it looks on the face of it. Man is essentially a unity, not the disunity which the union of two separate unities, mix and join them or fuse them as he may, would really be: his self-conscious yet ever changing personality the emergent conscious quintessence of the registered experiences of the underlying bodily self: whence his deep basic assurance of a personal identity beneath its changing phases. The introspective Ego, be it ever so acute, expert and free, is tied down by material bonds; for without memory there would be no mind and without body no memory.

Modern psychiatry is paying more attention, not to the unconscious mind, but to what has been termed the unconscious affective urge, to the visceral changes, the variations in activity of the autonomic and endocrine systems, to the changes in bodily function which underlie, for example, the subtle readjustments of adolescence and the climacteric. Frankly, we are coming to recognize that psychiatry no longer stands alone, but must keep pace with developments in other departments of biological science. When the medical student goes into practice he quickly recognizes that the types which he committed to memory from text books with such toil are largely artificialities. The neurasthenias, anxiety neuroses and melancholias rarely come before him with the clearness that he might have expected from his reading. After all, our patient is not a case of "melancholia," but an individual, perhaps born from a cyclothymic stock and himself subject to unusual oscillations of mood, who, under the stress of business responsibilities involving loss of sleep and gradual exhaustion, has suffered this deep depression of his capacity to react to his environment. *Nihil humani alienum a me puto*. Causation in mental disorder lies not in heredity alone, nor in microbial invasion, nor in the stresses incidental to the reproductive function, nor in exposure to environmental influences which evoke profound and exhausting emotional responses, but is a resultant of many factors. Thus disentangling the web of causes and effects which make up the clinical picture, we come to think less in terms of disease and more in terms of reaction. And until further progress is made along these lines our understanding of mental disorder and our capacity to gauge duration and outcome at present based on a recognition of benign and malignant features derived from statistical probabilities must remain relatively vague.

And as for treatment? I think that the psychiatrist's aim is something like this: to restore as far as possible the functional capacity of his patients and to place them in the environments for which they are best fitted. The so-called mental methods of treatment, the pass of the hypnotist's hand, moral suasion and suggestion, many of which have attained the dignity of a cult, will no doubt continue to be used more at the dictate of intuition than according to any definite principles until we have learned to select and present such stimuli with the precision of a worker in Pavlov's laboratory. But the greater number of our cases call for attention at the physiological level. We have before us bodies which are fatigued, undernourished, exhausted by environmental demands which have taxed to the uttermost the adaptive capacity of an organism often in constitution poorly endowed. Thus the gospel of fatness and relaxation may still be preached with confidence. And when the organism has attained a condition of relative stability, the patient is guided back to social and economic responsibilities which lie within his range of adaptation. The chronic inmates of mental hos-

pitals are for the most part those who have passed through a phase of acute illness with permanent damage to higher centres which thereupon function on a lower level. All too often in psychiatry we have to deal in Jackson's phrase with the "functions of the intact remainder," so that much of the psychiatrist's work lies in getting the best out of what is left by devising a scheme of life (diet, *diæta*) to suit the individual case by selecting the environment and by setting the patient to special work under controlled conditions. And in this connexion the psychiatrist can usefully enlist the assistance of the educationalist, vocational psychologist and the social worker.

The success of the close collaboration between psychiatry and other departments of medicine through the establishment of psychiatric clinics associated with general hospitals on the Continent of Europe, in the United States of America and in Canada has emboldened us here in Sydney to hope for the realization of similar schemes. This hospital has actually obtained a sum of money sufficient for the building of a special block containing about forty beds, and only funds for maintenance are wanting. Such a clinic should deal not only with neurological cases and neuroses as at present in the few beds allotted to this department, but should make provision for patients with such acute "mental" conditions as delirium, confusion, stupor with a toxic exhaustive basis (encephalitis, puerperal psychoses *et cetera*) whose conduct renders them unsuitable for nursing in a general ward and who must otherwise be dealt with under certificate. Then there would be the advantage of a richer store of teaching material to which the student could have ready access.

The out-patient treatment of mental disorders is now an established function of all up-to-date general hospitals and I will do no more than point out that the treatment of neuroses and psychoses in their early stages offers a reasonable prospect that "insanity," that is, the need for certification, may often be prevented. The relief of insomnia, rest, adequate nutrition, the removal of or from some source of worry are often enough to break a vicious circle, with gratifying results to patient and physician. Those who need prolonged rest under hospital conditions or reeducative measures, such as occupational therapy, also patients for malarial treatment, are referred to Broughton Hall Psychiatric Clinic. That our work in this department is steadily increasing is sufficient evidence that the department of psychiatry fulfils a need. The foundation of a biological institute under the new chairs of medicine and surgery will provide the opportunity for a closer association between the various departments of this hospital, which should be to the advantage of each one.

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REMARKS ON PENETRATING PEPTIC ULCER.¹

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CHRONIC ulceration of the stomach and duodenum is a distressing disease; it is very difficult for anyone with indigestion to be cheerful or optimistic and the whole outlook on life tends to be characterized by hyperacidity.

When the ulcer becomes adherent and penetrates the wall of the stomach the lives of these unfortunate patients are made almost unbearable by pain. One patient in this series (Case III), a station cook, middle-aged, was so miserable that she told me she wished I would cut her head off. As will be seen by analysis of the cases, the main symptom is pain, constant and severe.

Symptomatology.

An uncomplicated gastric or duodenal ulcer is characterized by a remarkable periodicity in the symptoms. If the history be carefully taken, it will be found that the symptoms come on in definite attacks lasting for some weeks with intervals between the attacks, which are much longer and may be six to twelve months. This periodicity occurs whether the patient has been treated medically or not.

No satisfactory explanation is known to account for these intervals of freedom; it used to be thought that they were due to the ulcer healing, but operation during an interval of freedom has shown again and again that the ulcer is still present and active. During the attack the usual complaint is discomfort rather than pain, in the form of flatulence, weight or burning, referred to the epigastrium or lower part of the thorax; this discomfort has a definite relationship to meals, coming on in the case of gastric ulcer a quarter of an hour to two and a half hours after meals. There is some evidence to indicate that the higher up the lesser curvature the ulcer is situated, the earlier the discomfort appears. When it appears early, it is usually relieved by some means—vomiting, belching, soda—before the next meal, so that there is a definite rhythm established of food, relief, pain, relief, food *et cetera*.

When the ulcer is near the pylorus, discomfort appears late and usually lasts till the next meal, which relieves it. This resembles the history of duodenal ulcer, with its definite pain hours after a meal, so that patients will call it pain before meals, which is relieved at once by food. The sequence in these cases is food, relief, pain, food *et cetera*. These two types of periodicity are present in almost all cases of uncomplicated gastric and duodenal ulcer.

¹ Read at the first annual reunion of the Royal Prince Alfred Hospital Residents' and Ex-Residents' Association, October 7 to 11, 1930.

Vomiting may or may not occur. Hæmatemesis and melæna may both occur, but it is now realized that bleeding is not a frequent or characteristic sign of chronic ulcer, except in the form of occult blood in the stools. Bleeding is the one great and important sign of acute ulceration, and a diagnosis cannot be made without it; but that does not lie within the province of this paper. Severe bleeding may occur in chronic ulcer and be extremely serious and sometimes fatal, but it is absent in the great majority of cases. Appetite is usually good, but the patient may refrain from food on account of pain. Loss of weight may occur in cases of long standing, but is usually absent.

A test meal in most cases reveals an increase in free hydrochloric acid and total acidity, but it is important to remember that normal or subacidity may be present. Hyperchlorhydria is found more constantly in duodenal ulcer than in gastric ulcer. With the onset of complications, hour glass contraction, pyloric obstruction, adhesions to neighbouring viscera, carcinomatous changes or perforation, the whole picture changes. In this article I wish to consider only adhesions and penetration of the stomach wall.

The history will usually show that the attacks have been altering in character by becoming more frequent, more severe and longer. The attack for which the patient seeks relief may have lasted five to six months instead of a few weeks, as formerly. The discomfort which previously followed meals, is replaced by pain, which is usually severe; and if the penetration is into the pancreas, pain is usually felt to the left of the mid-epigastrium, and runs into the left side of the back or left shoulder. The pain will be almost continuous throughout the day, and though increased or diminished by food, may not entirely disappear at any time. It is frequently severe enough to make the patient moan and roll about.

Vomiting may or may not become more frequent, but it does not relieve the pain as it did before. The incidence of hæmatemesis and melæna is not changed in any way. They may be absent or severe, or even fatal, if the splenic artery is eroded. The patient usually voluntarily reduces the amount of food taken on account of pain, but there is no real loss of appetite amounting to distaste for food. Loss of weight usually occurs and is considerably marked, but it is not invariably found. The patient may be thin and wasted like a man with advanced cancer of the stomach, but he may preserve his usual condition. Some degree of secondary anæmia is usually present. A test meal may reveal the same variations as in cases of uncomplicated ulcer; one patient in this series had achlorhydria.

Case Reports.

CASE I.—W.L., a male, aged forty-five years, a farmer, for two years had fullness, flatulence and occasional pain a quarter to half an hour after meals. These symptoms were usually relieved by vomiting; he used to have short intervals of freedom. In the last three months the pain

had become constant and more severe; it was diminished after meals, but did not disappear. It was always felt to the left of the mid-epigastrium. Vomiting was frequent and did not relieve the pain. No hæmatemesis or melæna was present. Appetite was poor. He had lost 9.4 kilograms (one stone seven pounds) and felt very weak.

On examination he was emaciated and pale. His teeth were very decayed and dirty. His abdomen was tender to the left of the epigastrium, but no mass could be felt. The X ray diagnosis was duodenal ulcer. A test meal revealed slight hyperchlorhydria.

Operation on June 19, 1922, disclosed a healed ulcer of the greater curvature of the stomach and ulcer of the lesser curvature and posterior wall five centimetres (two inches) in diameter, penetrating into the pancreas. The stomach was separated from the pancreas, the thickened edges of the ulcer were excised and the opening sutured at right angles to the long axis of the stomach. His teeth were all extracted later.

On October 8, 1924, he reported himself excellent, and he never has any trouble.

The change in the patient's symptoms from discomfort to continuous pain was very definite. The X ray report of duodenal ulcer shows that even big ulcers on the posterior wall may be overlooked. The excision of the ulcer alone is frequently not sufficient to cure the condition, as in this case. Compare Cases III and IV.

CASE II.—G.C., a male, aged forty-two years, a labourer, complained twelve months ago of nagging pain which began to come on one hour after meals. It was situated in the left hypochondrium and worked up to behind the sternum. It was relieved by vomiting or belching and disappeared before the next meal. He used to have intervals of freedom of a month, but for the last five months the pain had become constant and more severe. He had no pain in the back. His appetite was good, but he had lost 6.3 kilograms (one stone) in weight in twelve months. He had neither hæmatemesis nor melæna.

On examination his abdomen was tender in the epigastrium, but no mass was felt. X ray examination revealed a large penetrating ulcer of the lesser curvature. A test meal was not given.

Operation on May 6, 1930, disclosed an ulcer of the lesser curvature penetrating into the pancreas. It was freed, the edges were excised and sutured and a posterior gastro-enterostomy was performed. He left hospital without symptoms and has not reported since.

The change in the symptoms from nagging pain to severe pain and the length and severity of the last attack are quite definite. Most patients with such an ulcer show pain in the back or left shoulder, but it was absent in this case. Excision of the ulcer combined with gastro-enterostomy is the operation of choice. Either operation alone is not sufficient, as is shown by cases in this series.

CASE III.—M.T., a female, aged fifty years, a station cook, had discomfort after food for two years. She was relieved by treatment till seven months before admission, when pain began to come on again immediately after meals. It was situated in the epigastrium and was severe and lasted most of the day. Vomiting was frequent, without relieving pain. Hæmatemesis had occurred several times. She had a poor appetite and had lost 3.1 kilograms (seven pounds) in weight.

On examination there was tenderness in the epigastrium, but no mass was felt. X ray examination revealed an ulcer on the lesser curvature with a typical hour glass contraction. No test meal was given.

At operation on October 22, 1924, the ulcer was excised with a wide "V" of the lesser curvature and the opening was sutured at right angles. The patient left hospital with her symptoms relieved, but was readmitted on August 18, 1925, the symptoms having recurred after a few weeks.

The pain came on immediately after food in the epigastrium and radiated to the left hypochondrium and under the left breast. It was severe and gnawing and present almost all day. Vomiting occurred occasionally without relief. Appetite was poor and she had lost 2.7 kilograms (six pounds) in weight in four months. Physical examination was as before, except that she was thinner and more tenderness was present in the epigastrium.

X ray examination revealed a large penetrating ulcer of the lesser curvature with definite spasm at the site. A test meal revealed achlorhydria and very low total acidity.

Operation disclosed a large ulcer of the lesser curve penetrating the pancreas with an hour glass contraction opposite the ulcer. Partial gastrectomy above the ulcer was performed after separating stomach and pancreas. The patient has been well since, as far as digestive symptoms are concerned, but has been twice in hospital this year with *angina pectoris*. X ray shows no ulcer at the anastomosis.

The early history shows how closely the symptoms of hour glass stomach may resemble those of penetrating ulcer; in both periodicity is lost and pain becomes more constant. It is not as a rule so severe in hour glass stomach and the picture may approximate that of carcinoma of the stomach. It also shows that hour glass stomach does not always have a long history, a fact which I have confirmed in other cases.

This case shows how simple excision of the ulcer may be followed quite soon by recurrence of symptoms. A partial gastrectomy should have been done at first; it is the most suitable operation for hour glass stomach when it can be performed.

CASE IV.—M.B., a woman, aged fifty, was admitted to hospital in May, 1924, with a perforated gastric ulcer. For three years she had had indigestion and grinding pain in the epigastrium after meals, which was relieved by food, vomiting or belching. At operation an ulcer was found to be present high on the lesser curvature; it had perforated. It was so large and indurated that it could not be infolded and was excised.

The patient was well after this for three years, when she began to get severe pain in the epigastrium three hours after meals, relieved by vomiting or alkalis. The pain had become more constant and severe in the last two months, so that she was very miserable. Her appetite was poor and she had lost 12.6 kilograms (two stone) in weight. There was no history of melæna or hæmatemesis. X ray examination was not carried out and no test meal was given.

At operation on April 15, 1930, an ulcer was found high up on the lesser curvature, penetrating into the pancreas. There was an hour glass contraction opposite the ulcer. After the stomach and pancreas were freed, partial gastrectomy was done above the ulcer. The patient is very well at present; in her own words, she has been given a new lease of life.

This patient had an uncomplicated gastric ulcer at the time of perforation. Three years later symptoms began, suggesting adhesion to the pancreas or hour glass contraction. This is another illustration of chronic ulcer recurring after excision alone. The condition at the first operation was too bad for anything further to be done.

CASE V.—M.S., a woman, aged sixty-six years, had pain and discomfort in the epigastrium for twenty years, coming on an hour after meals and relieved by alkalis. Attacks used to last four to five weeks, with intervals as long as a year. Five years previously they had become more frequent and severe, and the pain had spread into the left side of the back. She was operated on four years previously. Her papers show that she then had an ulcer of

the lesser curvature adherent to the pancreas. A posterior gastro-enterostomy was done. She was better till six weeks before I saw her, when the same symptoms recurred and she had had severe pain every day since, with occasional vomiting, which did not relieve the pain. She had a poor appetite and had lost weight.

On examination she was a feeble and unhappy old woman. There was tenderness in the epigastrium. Both kidneys and the liver were palpable. Examination of the abdomen revealed nothing else abnormal. X ray examination revealed an eight-hour residue, a pouch-like stoma, and no irregularities of the duodenum, but some food remained constantly in the first part. A test meal revealed slight hyperchlorhydria.

Operation on March 27, 1930, disclosed an ulcer of the upper half of the lesser curvature, penetrating into the gastro-hepatic omentum, which was adherent to the posterior wall of the lesser sac. The stomach was freed, the thickened edges of the ulcer were removed and the opening in the stomach was sutured. She was quite well on leaving hospital, but has not reported since.

This patient had a long history of uncomplicated gastric ulcer whose symptoms showed an alteration a year before her first operation, suggesting adhesion to the pancreas; when the symptoms recurred, they showed the same character. It is an instance of recurrence of symptoms after gastro-enterostomy only. Probably throughout the whole interval the ulcer was unhealed.

CASE VI.—A.B., a male, aged fifty-eight, a barber, complained that two years ago he began to get pain in the epigastrium and under both costal margins three to three and a half hours after meals. This was relieved by medical treatment for three to four months. Then the pain recurred in attacks lasting two weeks, with intervals of three to four months. The last month the pain had become more severe and continuous and spread round to the back. He had been vomiting every day for the last month without relief. His appetite was fair, but he had been afraid to eat much and a milk diet had not relieved his symptoms. He had had no hæmatemesis or melæna.

On examination he was a thin, grey-haired man in obvious pain. He was definitely anæmic. The abdomen was normal, except for tenderness in the epigastrium. The X ray diagnosis was a probable carcinoma of the pylorus. No test meal was given.

Operation on May 22, 1930, revealed a large ulcer of the second part of the duodenum adherent to and penetrating the head of the pancreas. The stomach was divided about 6.25 centimetres (two and a half inches) above the pylorus, the distal end was closed and infolded and the proximal end anastomosed to the side of the jejunum behind the transverse colon, as recommended by Devine for this class of ulcer. The patient was particularly well when he left hospital and has remained so up to the present.

The same alteration in the severity of the symptoms and the disappearance of the periodicity are seen in this case as in cases of penetrating gastric ulcer.

The ulcer was missed in the X ray examination; the suggested diagnosis of carcinoma of the stomach did not fit in with the history, which definitely pointed to a penetrating ulcer. Gastro-enterostomy does not seem sufficient for penetrating duodenal ulcer, but Devine's operation is very satisfactory.¹

CASE VII.—R.G., aged forty-four years, was discharged from the Australian Imperial Force in England in June, 1917, with a gunshot wound of the left forearm. For some months previously he had had vague abdominal pains unrelated to meals; there had been no vomiting, but he had lost considerable weight. At the time of his discharge he first noticed blood in the stools and this continued at

¹ Since this was written A.B. has reported with symptoms suggesting gastro-jejunal ulceration.

frequent intervals. In September, 1919, he was treated medically and the melæna disappeared till June, 1920. Then he had a severe hæmorrhage and a gastro-jejunosomy was performed for a gastric ulcer. He was well after this for two years. In 1922 he had a second severe melæna in Europe. An X ray examination revealed an ulcer at the pylorus and the operation of "closure of the pylorus" was performed. He was well for a few months and on his return to Australia began to have vague pains in the upper part of the abdomen, unrelated to meals; he had constant small tarry motions, which continued even under strict dietary conditions. These symptoms were present till September, 1929, when he had a third severe melæna. He then presented on examination the picture of a man who had had a severe hæmorrhage, but was in no pain and had no tenderness on gentle examination. He was thin, but not wasted. He recovered quickly and an X ray examination in October, 1929, revealed a gastro-jejunal ulcer. A test meal early in 1929 showed that the gastric acidity was within normal limits.

Operation on October 15, 1929, disclosed a gastro-jejunal ulcer on the left of the anastomosis which had penetrated into the thickened fibrous fat of the transverse mesocolon. After separation, the edges of the opening were excised and it was closed. Many adhesions made examination difficult, but no other ulcer was found and the pylorus seemed to have been removed completely. There was no sign of contraction of the stoma. Since then he has been very well. There has been a recurrence of the melæna on one occasion.

This history is given fully, as the case is not ordinary. The patient has had a gastric ulcer since 1917, with none of the usual symptoms of discomfort or pain related to meals, but almost entirely continuous melæna. There is no doubt he had a gastric ulcer at operation in 1920, but gastro-enterostomy gave relief for only two years. In 1922 an ulcer was present at the pylorus and apparently a pylorotomy was performed. The symptoms reappeared soon after and continued till 1929. The gastro-jejunal ulcer had not shown itself by the usual signs. When such an ulcer forms, pain is the most frequent complaint. This is definitely related to food and is frequently relieved by food, simulating a return of the original gastric or duodenal ulcer; the pain, however, may be constant, with periods of exacerbation and diminution. The site of the pain is characteristic, it is left sided and runs downwards towards the left iliac fossa.

The reappearance of the melæna since the last operation suggests that excision of the ulcer is not going to cure the melæna, and one is left with the feeling that there is some other explanation of the bleeding than chronic ulceration.

Summary.

1. Five cases of penetrating gastric and one case of penetrating duodenal ulcer are reported. They all show distinctly the alteration in the symptoms when adhesions and penetration occur.
2. Two cases, III and IV, illustrate the recurrence of a chronic gastric ulcer after excision only.
3. One case, V, illustrates the continuation of ulceration after gastro-jejunosomy only.
4. One case, VI, illustrates the relief given by Devine's operation in penetrating duodenal ulcer.
5. One case, VII, of penetrating gastro-jejunal ulcer with unusual symptoms is reported.

Reviews.

NASAL SINUSITIS.

SPECIALISTS have been accused, and frequently not without just reason, of being very narrow in their outlook. Nobody, after reading Dr. Patrick Watson-Williams's work on "Chronic Nasal Sinusitis and Its Relation to General Medicine," can accuse him of this fault.¹ Practically the first half of the book may be considered as a dissertation on focal sepsis. The work is addressed as much to the general practitioner as to the rhinologist, and the essential purpose of the author is to emphasize the influence of chronic sepsis in the nasal sinuses as a prolific source of disease involving almost every region of the body, which the author maintains comprises quite a large proportion of the cases in the daily practice of the general physician and surgeon. The author has produced evidence of the actual migration of organisms from the sinuses; particularly does he clearly show how this migration can take place from the mucous membrane of the sphenoidal sinuses into the pituitary stalk itself, which latter brings about alterations in basal metabolism and in endocrine gland balance. He emphasizes how important is the case history in the diagnosis of focal sepsis, and typical cases are quoted. The subject of focal sepsis is approached from several aspects, and its signs and symptoms are dealt with in a thorough manner, the occurrence of the latent or occult form being specially emphasized.

There is a short chapter on sinusitis in children, and the recurrence of adenoids due to this cause is mentioned. Likewise, the connexion between sinus sepsis and appendicitis and the familial infection factor is clearly illustrated by cases. There is an important section devoted to the influence of focal sepsis on the mind and character; and the relationship between insanity, suicide and crime and neuralgia, neuritis, headaches *et cetera* is discussed. Its relationship to infections of the respiratory and the gastro-intestinal tracts, to diseases of the heart and blood vessels, to chronic infective arthritis and to orbital infections is efficiently dealt with.

The second part of the book is intended primarily for the specialist. Endorhinotomy and the author's diagnostic exploratory suction procedures are fully discussed and illustrated, and we think that both these methods of investigation could with advantage be more widely used than they are at present. Emphasis is made of the anatomically irregular sphenoidal sinuses and ethmoidal cells, and the description of his differential diagnostic test clearly shows the importance of its use. Chapters on principles in treatment and the author's per-nasal operations are satisfactorily dealt with. As is well known, the author has been a prolific writer, particularly on the question of sinus disease and its relation to optic neuritis, and is a world authority. The book may be considered as containing his ideas in full on the subject, and has been based on his Semon Lecture of 1925, as well as on his text book "Rhinology" and other previous publications.

Nasal accessory sinusitis has assumed serious proportions in Australia, and such a work as the one under review, we think, is well worth the consideration of all our medical practitioners, particularly the general practitioner, the physician and the rhinologist. We strongly recommend it, for we consider that the author has in an excellent manner emphasized the relationship between sinus infection and the many secondary affections with which the general practitioner and physician particularly are brought into contact.

The section on X rays as a diagnostic aid is, we consider, altogether inadequate for such an important subject.

The book contains 109 illustrations, which include several of the beautiful dissections from the Onodi collection of the Royal College of Surgeons Museum.

¹ "Chronic Nasal Sinusitis and its Relation to General Medicine," by P. Watson-Williams, M.D.; 1930. Bristol: John Wright and Sons Limited. Royal 8vo., pp. 238, with illustrations. Price: 15s. net.

The Medical Journal of Australia

SATURDAY, APRIL 25, 1931.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

THE MEDICAL WRITER'S BIBLIOGRAPHY.

It has become the custom to append a bibliography or a list of references to most papers published in medical journals. The reason for initiating this custom was sound, but, like so many other useful customs, it has been overdone. The purpose of a bibliography is to show that an author has studied his subject, to show that he has justification for certain statements on which he may base his own argument, and to allow his reader to investigate the question at issue in the light of the work of other investigators. Sometimes the bibliography is unsuitably selected and absurdly long; sometimes it is quite superfluous. (It must be pointed out that a bibliography is described in this journal as a list of references when the numbers of the bibliography have corresponding reference numbers in the text of the article.) To a medical editor the bibliography of the average medical writer stands in much the same relation as the fleas did to David Harum's dog—it keeps him from brooding on being an editor.

Several definite rules may be laid down in regard to the addition of a bibliography to a medical paper. In the first place, if the author is undertaking a

complete review of a subject, he will necessarily publish as complete a bibliography as he can secure; if he is not doing this, he should refer only to such publications as throw additional light on the subject of his own article. The word "additional" is used here advisedly. There is no need to quote authorities for statements or points of view which are generally accepted as true or admissible. Of course, arguments by another author on an admitted fact may be quoted if the argument of that author is to be used as a starting point for further discussion. In the second place, an author should quote only those references that he has used in the compilation of his own contribution; all others are redundant. An author who publishes a long list of references taken from another author's paper, is guilty of plagiarism. If an author has seen only an abstract of an article, he should state this fact. If he neglects to do this, he obviously vouches for the abstract as a correct account of the original contribution; and abstractors are only human; they make mistakes like other folk and have been known to give quite a false interpretation of an author's meaning. Having chosen the references for inclusion in his paper, an author must do his best to quote them accurately; an inaccurate reference is quite useless. More than that, he must follow the style of the journal to which he is forwarding his contribution. Every journal adopts a style and every editor does his best to conform to the style of his choice. It is, to say the least of it, a little discourteous for an author to think that anything is good enough for transmission to an editor. The style adopted by this journal is set out above the leading article in every issue. While many authors have been most helpful in following directions, others apparently look upon the matter as not worth bothering about. While every effort is made by the small editorial staff of this journal to check references, it must be recognized that the responsibility for accuracy rests solely upon the author's shoulders. It may thus be concluded that a carefully chosen bibliography, well drawn up and accurately quoted, is in a large measure an index of the author's reliability. A quotation to suit the occasion may be adapted from an another source: "By their bibliographies shall ye know them."

Discussion on this subject would be incomplete if some attempt were not made to show how Australian authors may improve their bibliographies. To any author desirous of searching the literature, the "Quarterly Cumulative Index," published by the American Medical Association, is indispensable. This work, which is a continuation of the old "Index Medicus," is available in many centres in Australia. Unfortunately many of the journals and books quoted in this index are not available in Australia, and those journals that are to be had, are widely scattered. Another book which indicates where scientific journals may be found in Australia, is the "Catalogue of the Scientific and Technical Periodicals in the Libraries of Australia." This book has been edited by Mr. E. R. Pitt for the Council for Scientific and Industrial Research. When a journal is not available in Australia, the position of an author is most unfortunate. Many men have found that membership of the Royal Society of Medicine is useful, for arrangements can be made with the Society for abstracts from any medical journal to be prepared for them in London. In conclusion, medical practitioners in country districts who cannot obtain information from their own Branch libraries, are invited to communicate with the editorial staff of this journal. The facilities at this office, though small, are at the disposal of readers.

Current Comment.

PLACENTAL HORMONES.

HORMONES and alleged hormones have been extracted from numerous organs and tissues throughout the body. Tissues which were never imagined to have any function beyond the support of other apparently more important structures, have been forged into the endocrine chain. A great deal of work has been done in this extremely fascinating subject and a great deal has been learnt, but many conclusions have been immature and it must be admitted that much remains to be learnt before knowledge of the glands of internal secretion and their function can be clearly set out. The study is a comparatively recent one and it is hampered as much by the complexity of the endocrine system as by the apparently contradictory results obtained by different observers and by the use of different laboratory animals under different conditions. Though here and there some definite truths are

revealed as beacons amid a myriad deceiving lights of less brilliance, the way to endocrinological knowledge is but dimly defined. Therefore does it behove every investigator to step forward warily and every medical practitioner to accept with caution each new discovery. J. B. Collip has made several important announcements regarding hormones in the human placenta. Recently again, in association with D. L. Thomson, M. K. McPhail and J. E. Williamson, he has described further experiments.¹ These workers remark that in the numerous published papers concerning the placenta and the urine and blood of pregnant women, it has been generally assumed that the active principle in these substances which has a stimulating effect on the gonads, is identical with the principle elaborated by the anterior lobe of the pituitary gland. This "anterior-pituitary-like hormone" may be readily extracted from the human placenta by a method similar to that employed by Zondek and Aschheim and Biedl for the extraction of substances from the urine of pregnant women. The substance was administered subcutaneously or intramuscularly to rats. It was found to have a pronounced stimulating effect on the growth of the seminal vesicles and prostate of immature male rats and little or no effect on the testes. When administered to adult male rats it caused very greatly increased growth of the seminal vesicles and prostate, and it had a similar but not such a pronounced effect on the testes. It had no apparent effect when administered to castrated male rats; thus it was indicated that the presence of the gonads is necessary for the action of the hormone. It may be, however, that the substance acts by stimulating the gonads to produce a secretion whose activity results in the changes which Collip and his coworkers ascribe to the placental extract itself. The administration of the substance to immature female rats resulted in rapid growth of the ovaries, though seldom did these organs exceed the normal adult size. The substance seemed to have little influence on the growth of the adult rats' ovaries.

Comparisons were made with the effects of implantation of fresh pituitary glands. As a result of this treatment, seminal vesicles and prostates of immature rats grew at a greater rate than occurred after the administration of the placental extract; a pronounced and consistent growth of the testes was also noted. Implantations of fresh pituitary glands into immature female rats resulted in an enormous and rapid hypertrophy of the ovaries. Implantations into adult male rats had some but not nearly such pronounced effect on the sex organs, but Collip and his coinvestigators suggest that perhaps an inadequate dosage was employed.

It has been suggested that the human placenta contains hormones which are absent from the placenta of other mammals. Collip and his fellows remark that the truth of this suggestion was borne out by their failure to obtain active extracts from

¹ The Canadian Medical Association Journal, February, 1931.

the placenta of the dog. They note that Cole and Hart have demonstrated the presence of a hormone similar to that produced by the anterior lobe of the pituitary in the blood serum of the pregnant mare, but they believe that the placenta of the primates has acquired new endocrine functions. On this account they are at present engaged in experiments on monkeys.

In a previous communication Collip expressed the opinion that the human placenta contained three hormones, all of which were oestrogenic to the immature rat, and two of which were similar to the prolactin A and prolactin B described by Zondek and Aschheim as occurring in the urine of pregnant women. That these remarkable substances do exist in the placenta must be accepted, but whether or not they should be regarded as hormones manufactured by the placenta is another matter. Blair Bell roundly condemns any efforts at placing the placenta among the endocrine glands. He remarks that there is a danger of the necessary inclusion in the list of "every cell in the body with its assimilative and excretive functions which concern its own metabolism." In his opinion internal secretion is the function of structures, phylogenetically old, which have become specialized for their work concerned with the general metabolism and reproduction; such organs are an integral part of the individual and function continuously. The placenta is thus discarded on three counts. It has a short phylogenetic history, it is not a maternal structure, and it is only a temporary occupant of the uterus.

The placenta has an important mechanical function, but it is not inconceivable that, in addition to the transference of substances of various kinds from the maternal to the foetal circulation, it may also be concerned in the actual production of some substances necessary to foetal growth and development. If it may do this for the foetus, why not also for the mother? On the other hand, the mere fact of the presence of these substances in the placenta is no proof that they are evolved by this temporary structure. It seems strange that, though the administration of extracts from the human placenta produces oestrus in the female rat, the very presence of the placenta within the human uterus is a guarantee of amenorrhoea, a cessation of ovarian activity and a subservience of the sexual functions, in common with almost all bodily functions, to the demands of impending motherhood. If animals larger than rats be used, partial extirpation of the anterior lobe of the pituitary gland and the administration of placental extracts may indicate whether or not the particular substance tested by Collip and his coworkers be identical with the hormone of the pituitary's anterior lobe.

THE RECURRENCE OF VARICOSE VEINS.

THERE can be no doubt that one of the most important advances in surgical practice during recent years has been the injection treatment of varicose veins. When excision was used, operations

were often extensive, much time was consumed in their performance and the patient was condemned to long periods, often many weeks, of inactivity; healing, moreover, did not always take place by first intention. After it was found that varicose veins could be obliterated by injection and that it was not necessary for the patient to go to bed, injection treatment became popular with both patient and surgeon. Many books have been written on the injection treatment of varicose veins and numerous articles have been published in medical journals. Reports of the immediate results have been favourable, but the question of recurrence has arisen. It would be surprising if this were not so. When arteries become obliterated as a result of arterial disease, there is a tendency for recanalization of the sclerosed arteries to occur; there is no reason to presume that a similar occurrence might not be noted in veins.

N. J. Howard, C. R. Jackson and E. J. Mahon have studied the end results of the treatment of varicose veins by injection and report results which may be somewhat disturbing to those who practise this treatment.¹ They have studied a series of sixty-six patients. The substance injected into the veins was a 20% solution of sodium chloride. Recurrence was observed a year or more after thrombosis in fifty-two patients. The authors state that with their method of injection (they describe it in detail) thrombosis was easily obtained. "A few cases were at first refractile to the treatment," and in these instances other substances, such as dextrose, quinine and urethane, were used. The first question for consideration is whether sodium chloride is the most suitable substance for injection. Australian workers as a rule do not favour it; they hold that the clot is too soft and that embolism in these circumstances is more liable to occur. The type of substance used for injection must undoubtedly have a bearing on the type of clot formed. The more severe the reaction, the more lasting in all probability will be the clot. The rate of recurrence reported by Howard, Jackson and Mahon for all patients treated is 79%; for the patients observed for a year or more the rate was 98%. It is our impression, confirmed as far as possible by inquiry from Australian surgeons, that the rate of recurrence among the patients of those who use quinine and urethane is not nearly so high as this. The most important factor in the production of good results is the way in which the injection is carried out, in other words, the site of injection must be suitable and all affected areas must be included. It is, of course, impossible to discuss this aspect of the work of Howard and his collaborators. They insist that interruption of the continuity of the vein by excision is essential to the securing of permanent results. Such excision will sometimes be necessary, but these occasions will be less numerous if careful attention is paid to the selection of patients, the solution used and the details of technique.

¹ *Archives of Surgery*, March, 1931.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

The Hydration of the Tissues and the Role of the Liver in the Metabolism of Water.

P. L. VIOLLE (*La Presse Médicale*, April 19, 1930) has reviewed the general physico-chemical factors which determine the distribution of water in the living organism, and a disturbance of which may result in oedema or conversely in the apparent dryness of the tissues in febrile states. In addition to these factors the liver in particular exerts an important influence on the distribution and elimination of ingested water. Starling showed that the proteins of the plasma exert an osmotic pressure of 30 to 40 millimetres of mercury. Observations by Krogh indicate that the capillary walls are permeable to crystalloids, but impermeable to colloids. The osmotic pressure of the plasma proteins can therefore play an important part in the exchange of water between the blood and the lymph. As Bayliss has pointed out, this exchange is conditioned by the relative magnitudes of the capillary blood pressure and of the osmotic pressure of the proteins in the plasma. The osmotic pressure of colloids and also their hydration can be influenced by a number of factors. Small additions of acid or base increase both these properties, while further additions again depress their values. This influence of acids and bases depends only on the valence and not on the chemical nature of the anion of the acid or the cation of the base. The monovalent compounds are more active in this respect than the divalent. Neutral salts lower the values of the properties in question and this influence increases with the valence of the ion of the salt of sign opposite to that of the protein ion. At the iso-electric point a protein has its minimum affinity for water and the swelling consequent upon imbibition is least marked. The iso-electric point of the majority of proteins constituting the living organism is on the acid side of neutrality and the fluid milieu of the cells has a reaction on the alkaline side of the iso-electric point. Under these conditions the proteins combine with base. If the reaction of the milieu changes to the acid side of the iso-electric point, the proteins lose the combined base and combine with acid. The reaction of the body fluids changes but little, but Vles and de Coulon have shown that important variations of the iso-electric point of the body proteins occur in different pathological states. Ambard and Schmidt say that nephritis with oedema is accompanied by a displacement of the iso-electric point of the majority of the body proteins to the acid side, while the reaction of the body fluids is practically constant. The proteins lose acid and in consequence their osmotic pres-

sure falls. There follows an exudation of water into the interstitial spaces of the tissues. If, on the contrary, the iso-electric point of the greater part of the tissue proteins is displaced to the alkaline side, as occurs in many febrile conditions, these proteins combine with acid and imbibe water from the tissue spaces. This leads to "l'aspect desséché" of febrile patients and often to an intense thirst. The exchange of ions which determines alterations in the hydration of colloids is conditioned by two principal phenomena: (1) The rate of diffusion of the ions and (2) the final distribution of the ions when and if equilibrium is attained. These phenomena are regulated on one hand by membrane equilibria and on the other by the composition of the milieu in which the exchanges occur. Though the conception of a distinct limiting cell membrane is no longer tenable, the peripheral molecular film separating a cell from its environment possesses selective permeability and so the distribution of ions on either side of this film is in accordance with the principles laid down by Donnan. The composition of the milieu is important because of variations in the concentration of electrolytes and also in the nature of the colloid content which determines the distribution of electrolytes. In order that normal hydration of the tissues should exist, it is necessary not only that the cells and body fluids should contain a definite quantity of proteins, but also that the different kinds of protein should be represented in certain proportions. According to Govaerts, the normal condition is represented by a globulin-albumin ratio of 1:2. The cells are not, however, composed entirely of proteins. The lipoids imbibe water readily, while the true fats are extremely hydrophobe. Mayer and Schaeffer estimate that the water content of tissues is proportional to the lipocytic ratio, cholesterolin-fatty acids, which normally is in the neighbourhood of 0.40. The mineral content of cells can be divided into two groups: the substances which increase the hydration of the proteins and those which diminish it. Violle and Dufourt have shown that the alkali metals belong to the former group and the alkaline earth metals to the latter. They also state that in normal conditions the ratio Na/Ca is about 33. The work of Villaret indicates that the majority of liver diseases betray themselves first by an interference with the elimination of water. Any obstruction to the blood flow through the portal capillaries produces hypertension in the portal system. In consequence of the anastomoses between the portal and renal system of veins, renal disorders, at first purely functional, appear and an oliguria results. Further, the cirrhotic liver becomes incapable of retaining water, while, according to Azoulay and Jacquelin, the normal human liver can absorb up to 1.5 litres. True hydræmia may exist in pathological states, but is not a physiological condition. Mautner, Molitor and Pick are responsible for the con-

ception of an "hepatic barrier" which regulates the flow of ingested water into the general circulation. This conception has as its basis an anatomical fact—the presence in the hepatic veins of carnivora of thick muscular rings which might act as sphincters. Physiological evidence in support of this anatomically inspired conception is derived from the behaviour of water in carnivora as compared with the herbivora which possess no muscular system in the hepatic veins. Lamson and Roca injected serum intravenously in normal dogs and found that after forty minutes the dilution of the blood, as judged by the hæmoglobin content, was normal. Repeating this procedure in dogs with Eck's fistulæ, they found the blood still diluted after two hours. Cohnheim and Lichtheim injected intravenously a quantity of liquid three times the volume of the total blood volume. In the rabbit a fatal pulmonary oedema followed; in the dog intense portal congestion occurred, the liver increased enormously in size, drops of liquid appeared on its surface and ascites developed. Violle suggests that an investigation of the water content of the portal blood, liver tissue, and of the blood in the hepatic veins, at half-hourly intervals after the absorption of considerable quantities of water should afford useful information about the part taken by the liver in the control of tissue hydration. These investigations he is at present undertaking with Rathery. In carnivora histamine causes spasm of the hepatic veins, intense congestion of the liver, decreased venous return to the heart and a fall in arterial blood pressure. Since herbivora have no mechanism for producing spasm of the hepatic veins, histamine in these animals causes a rise in arterial blood pressure due to constriction of the splanchnic vessels. Adrenalin relaxes the hepatic veins of carnivora, constricts the portal veins and so diminishes liver volume. In herbivora this drug increases liver volume, since the constriction of the abdominal vessels drives blood into the liver, while no simultaneous relaxation of the hepatic veins occurs. If the hepatic veins are thrown into spasm by histamine and the liver is perfused from the portal side, the organ increases in volume; if the perfusion is in the reverse direction, no change in volume is apparent. The portal blood absorbs water from the intestines and the osmotic pressure of its colloids is diminished; the intrahepatic capillary pressure is greater in the proximal capillaries than is the general capillary pressure in other parts of the organism. For this reason the portal blood readily loses its excess of water into the liver interstices. In the more distal liver capillaries part of this water is reabsorbed, for here the osmotic pressure of the more concentrated blood proteins is greater than the hydrostatic pressure within the capillaries. Disturbances of liver function render the hepatic tissue incompetent to retain the excess water and also may cause changes in the albumin-globulin

ratio of the plasma, for it is most probable that at least part of the blood proteins are synthesized in the liver. Quite recent researches by Abram and Wallich indicate the importance of the normal albumin-globulin ratio. In cirrhoses accompanied by disturbance of water metabolism this value changes in the same way as in the nephroses; the ratio falls often below 0.7, there is a decrease of plasma protein and therefore of the effective osmotic pressure of the blood.

BIOLOGICAL CHEMISTRY.

Plasma Phosphatase.

H. D. KAY (*Journal of Biological Chemistry*, November, 1930) has given details of a simple method for the determination of the phosphatase of the blood plasma of man and of other animals. In normal plasma the amount of the enzyme per unit quantity of plasma is small compared with the amount present in an equal weight of tissue, such as kidney, intestine or bone. In young normal children and in young animals generally the blood plasma has a higher phosphatase content than in the adult. Once the adult stage is reached the plasma phosphatase does not appear to vary very much from day to day and the value for any one individual remains fairly constant, at least over several months of time. In determining the phosphatase content of the plasma it is necessary to avoid both hemolysis and the presence of leucocytes in the plasma, since both red and white cells contain more phosphatase than plasma. Pronounced differences exist in the phosphatase content of plasma of the different animal species. Rat plasma is usually two to three times as active as human plasma. Rabbit plasma is usually distinctly less active. Certain properties of the plasma enzyme are described. The optimum hydrogen ion concentration for activity appears to be the same as that of the phosphatases of other mammalian tissues, namely 8.8 to 9.2. Magnesium ions have a strong stimulating effect on the hydrolysis in low concentrations and an inhibitory effect in higher concentrations. The effect of calcium ions is slightly inhibitory. Small variations in the concentration of sodium, potassium or chlorine ions were found to have no effect on the phosphatase activity of the plasma. The enzyme was found to hydrolyse all the phosphoric esters presented to it, namely, hexosediphosphate, synthetic *a* and *b* glycerophosphates, pyrophosphate, glycolate and guanine nucleotide. The hydrolysis of each of these substrates, with the possible exception of hexosediphosphate, is stimulated by magnesium ions.

The Copper Content of Infant Livers.

DEMPSIE B. MORRISON AND THOMAS P. NASH (*Journal of Biological Chemistry*, September, 1930) have

analysed the copper content of the livers of twenty-five infants and seven adults. The material analysed was obtained from bodies which had been kept in a refrigerator until autopsy was performed. The gall bladders were removed as soon as possible, the livers were weighed and the copper content was estimated. Of the twenty-five infants whose livers were analysed, seven were of the white and eighteen of the negro race. The average copper content of the livers of white infants was found to be 17.3 milligrammes per kilogram and for the negroes 26.6 milligrammes per kilogram of fresh tissues. The average copper content of the adult livers was four milligrammes per kilogram. The highest value for an adult was lower than any of the values for the infants save one; in this instance the infant had suffered from severe anaemia.

Variations in the Inorganic Blood Phosphorus.

J. K. BULLOCK (*American Journal of Diseases of Children*, October, 1930) has studied the inorganic phosphorus content of serum in 307 subjects, 139 of whom were male and 178 female; 170 were white and 137 were negro subjects. The ages of the subjects varied from one day to seventy-three years. The inorganic phosphorus content of the blood of newly born infants was found to be less than that of any age group under five years. It increased rather rapidly during the first half of the first year, reaching its peak at the sixth or seventh month and then diminishing gradually until the time of termination of osseous growth at about the nineteenth or twentieth year; after this it remains more or less constant. The females tended to show at about the sixteenth or seventeenth year a more rapid decrease in the blood phosphorus than the males; this is in agreement with the idea that female growth is in advance of male growth and that it is probably complete two or three years sooner. Some of the determinations on both male and female subjects who were well advanced in years, showed values above four milligrammes per hundred cubic centimetres. The phosphorus levels of the different age groups of this series are high as compared with the results of others in different localities, but the results are probably to be explained by the season of the year at which the determinations were made. The age periods of most rapid growth do not show so pronounced an increase in the inorganic phosphorus as do the seasonal periods of most rapid growth. The author concludes that there is a significant relationship between the high phosphorus levels and the age periods of most active growth.

Insulin and Epinephrine and Blood Acetone.

CLINICAL experience has fully established the antiketogenic effect of insulin in diabetic ketosis, but the

action of insulin in ketosis of non-diabetic origin is more uncertain. Leif Salomonsen (*American Journal of Diseases of Children*, October, 1930) discusses this subject. In fasting children of less than three years of age an investigation was made on the effect of insulin and epinephrine on blood sugar, on blood acetone and on the fatty acid content of the blood plasma during the hours immediately following the injections. In eight experiments it was found that insulin reduced the blood acetone, but in decreasing degree according to the decrease of sugar in the organism. In two cases the fatty acid content of the plasma was estimated before and after the administration of insulin and in one a distinct decrease in lipaemia occurred simultaneously with the fall in blood acetone. Epinephrine under the same conditions produces an increase in the blood acetone, the increase being greater in proportion as the organism is more poorly supplied with sugar. In five of six experiments a distinct rise in the quantity of fatty acids in the blood plasma occurs after the injection of epinephrine. From these results the author infers that the antiketogenic action of insulin is probably a purely secondary process effected through the influence of insulin on sugar metabolism, possibly fat and sugar metabolism, and that the presence of a certain quantity of sugar is necessary in order that insulin may reduce an existing ketosis. The insulin antiketogenesis may also be connected with an increased fixation of liver glycogen or with a restricted breakdown of fats. The reduction in the fatty acids in one experiment is in favour of a restriction in the transport of fat to the liver. The experiments with epinephrine may point in the same direction.

Cystine Deficiency in the Diet and the Growth of Hair.

J. R. BEADLES, W. W. BRAMAN AND H. H. MITCHELL (*Journal of Biological Chemistry*, September, 1930) have shown that the addition of cystine to a diet whose protein content is so low as to be the limiting factor in growth and is deficient in this amino acid, increases its value in the promotion of hair growth in the albino rat. The method used for the estimation of the amount of hair was that of Lightbody and Lewis. The results obtained on the rations supplemented with cystine show that the hair is not only heavier altogether as compared with that produced on the same amount of the unsupplemented ration, but that it is heavier per unit of surface area. It appeared from the results of these experiments that the growth of hair had been stimulated to a greater extent by the cystine supplement than had the growth of all tissues as measured by increase in body surface. There was no indication from the results obtained that the demands of the more vital tissues for cystine had taken precedence over the demands of the hair follicles.

Special Articles on Diagnosis.

(Contributed by Request.)

XLII.

THE LEUCHÆMIAS.

It used to be a definition not so many years ago, that leuchæmia of any kind was a disease characterized by the persistent increase of the white cells in the blood, whereas it is well recognized now that there may actually be a decrease from the normal in certain conditions. Thus in the diagnosis of leuchæmia we shall have to consider not only the typical conditions of the text book variety, and more or less classical, but also a series of atypical but related states. There must be included in the scope of the review conditions such as chloroma, and it is more than likely that Hodgkin's disease and other similar conditions should be put in the same category. It would be a very difficult task to delve into the diagnosis of all these conditions and the recognition of the more easily recognized will alone be dealt with.

There has been comparatively little advance made in the recognition of the leuchæmias, excepting perhaps that the subleuchæmic and aleuchæmic states have received more generous recognition, and it is interesting to note that a wealthy Dane recently gave a large sum of money for the purpose of research into the leuchæmias.

It is certain that until the causative factor in the production of the leuchæmic states is discovered, there will be difficulty in defining what is the limit of the disease or how many different diseases are being lumped in one heap, and the only classification that at the moment can be tried is that which fits in with the various clinical and other data as we know them. It has to be borne in mind that the mere finding of a leucocytosis is much more likely to be the hall mark of some form of infection than to be due to the widespread changes in the tissues found in leuchæmia. There may be, certainly at some stage or another, a more or less leuchæmic blood picture in almost any infection; what is weighty here, is the character of the blood cell rather than its presence in very large numbers.

The recognition of the various white cells is necessary in the making of a diagnosis, and the ability to distinguish the mature polymorphonuclear cells from the younger ones according to either the classification of Arneeth or of Cooke and Ponder is extremely useful.

It is essential to be able to say whether a given cell is a myeloblast or a lymphoblast or lymphocyte, and again the granular character of the various myelocytes from the premyelocyte to the fully developed polymorphonuclear cell should be appreciated, and often enough it is only necessary to differentiate between a granular and a non-granular cell, the different varieties of the well developed polymorphonuclear cell being as a rule not a matter of difficulty, even to the tiro. Amongst the red cells the mere presence of a nucleated red cell puts the observer on his guard, and the character of the red cell is noted. The size and all the meticulous detail alleged to be of importance are not of real weight; the recognition of a nucleated red cell from a lymphocyte is sometimes not so easy.

It is interesting to note that Virchow and Hughes Bennett, who simultaneously described leuchæmia from *post mortem* appearances, thought that the appearances were due to septic infection.

Leuchæmia is a widespread disease and affects the lower animals as well as man. In man it occurs at all ages and affects both sexes, preponderating largely in the male sex. In my own experience it may be mentioned that I have seen in the last few years six cases of myelogenous leuchæmia in females to two in males.

Leuchæmias may be divided more or less arbitrarily into two groups, acute and chronic, and again according to the type of white cell preponderating into granular and non-granular, or mixed.

Chloroma, an extremely rare condition, certainly comes into the category of a leuchæmia, and it is more than likely that Hodgkin's disease is a form of the same disease. Other states of the blood, such as leuchanæmia, are very difficult to classify, and I have at present under my care a man with the physical signs of an acute Hodgkin's disease with the blood picture of a pernicious anæmia. He had a leg amputated twenty years ago for some joint condition, and I am wondering whether a sarcomatous condition recurring is not the origin of his trouble.

There is, too, von Jaksch's anæmia, and the importance of the badly named aleuchæmic leuchæmia must be strongly stressed, chiefly because the possibility of an aleuchæmic state is apt to be forgotten.

Acute Leuchæmias.

It is difficult enough sometimes to tell the difference between an acute and a chronic leuchæmia, and there are often subacute varieties which bridge the gap between the typical acute and chronic varieties.

Generally speaking, the acute varieties have a rapid course following a well marked onset, and the disease is usually fatal in a few weeks, or at most in a few months.

Occasionally the chronic states become acute and have a rapid termination, and it is likely that some of the acute cases described are chronic ones in a state of exacerbation.

The recognition of the acute granular from the acute non-granular leuchæmia may present more than ordinary pitfalls; little can be gained by comparison of the signs, symptoms and clinical course; the whole fabric of the interpretation of the case lies in the identification of the white cells. Myeloblastic leuchæmia is the commoner disease of the two, and the ability to distinguish a myeloblast from a lymphocyte is a *sine qua non*.

In both the acute leuchæmias the clinical picture is identical. There are fever, a tendency to hemorrhages, sometimes very severe and difficult to control, prostration and ulceration about the mouth. The patient looks and is gravely ill, the anæmia is obvious and the enlargement of the lymphatic glands of the neck can as a rule be made out. The spleen is usually enlarged, but not markedly so.

The blood picture shows a very marked anæmia, in both acute forms. There is a rapid fall in the number of red cells and the hæmoglobin content and the anæmia may be extreme. Gulland describes a case of myeloblastic leuchæmia in which the red cell count fell from 4,000,000 per cubic millimetre to 600,000 in ten days.

Nucleated red cells of all shapes and sizes are present and there may be basophilia present.

The number of white cells in myeloblastic leuchæmia is not so large as in the lymphatic variety, and is rarely more than 150,000 per cubic millimetre; in the lymphatic type the white count may be as high as 1,000,000.

Both varieties may remain subleuchæmic during the entire course of the illness. The percentage of myeloblasts is as a rule smaller than that of lymphocytes in the respective leuchæmias; in myeloblastic leuchæmia it ranges from 30% to 60%, whereas in lymphatic leuchæmia the percentage of lymphocytes may be as high as 90% or even more.

Gulland records a case of myeloblastic leuchæmia with 99% myeloblasts. It will be seen that the really important matter is the recognition of the variety of white cell, and this can be accomplished only by careful laboratory work and constant practice.

There are many conditions which simulate the acute leuchæmias and of these ulcerative stomatitis, or similar conditions, chronic sepsis, ulcerative endocarditis, pernicious anæmia, hæmophilia and *purpura hæmorrhagica* may be mentioned. Glandular fever presents difficulty at times by reason of the high lymphocyte count, and the diagnosis may not be easy. Glandular fever is a much milder condition in every way, the anæmia is seldom of any gravity and the course of the disease is favourable.

To illustrate the difficulty in diagnosis in this variety of case, let me quote a patient now under my care in the Brisbane Hospital.

A small boy, aged fourteen years, was admitted three weeks ago suffering from purpura. He was severely ill with hæmorrhages from the nose and bowel, extensive hæmorrhages under the skin, particularly under the skin of the face, and without fever. The blood count revealed a secondary anæmia, the white cell count was 6,700 per cubic millimetre, with a large percentage of lymphocytes, never less than 60%, and a platelet count of 20,000.

The clinical picture and the enormous fall in platelets suggested *purpura hæmorrhagica*; the large percentage of lymphocytes pointed to a leucæmia of the lymphatic type.

The serious point to decide is, splenectomy or not? The epistaxis was the most alarming symptom, and this has subsided, the purpuric manifestations have almost disappeared, and the only persistent features of the case remain the low plate count and the lymphocyte preponderance. I have left him alone, and he is at present apparently improving in general health.

An interesting case of glandular fever is reported by my colleague, Dr. Alexander Murphy, and the details of the blood count are here appended.

A male, aged twenty-one years, on March 21, 1927, had a red cell count of 6,000,000 per cubic millimetre, hæmoglobin value 120%, and colour index 1.0. The leucocytes numbered 36,000 and lymphocytes 96%.

On May 27, 1927, the leucocytes were 12,000 per cubic millimetre and the lymphocytes 45%. On June 20, 1927, the leucocytes numbered 6,400 per cubic millimetre and lymphocytes were 76%. On October 31, 1927, the leucocytes numbered 9,100 and the lymphocytes were 45%.

The Arneth count showed a definite shift to the left, and the C-P index was, of course, abnormally low—a point of diagnostic importance.

Acute myelocytæmia has been described. It is fortunately a very rare condition and there are records of only about twenty-five cases in the literature I have read.

The Chronic Leucæmias.

There are for all practical purposes only two varieties of chronic leucæmia, granular and non-granular, the former due to an excess in the blood of polymorphonuclear neutrophile cells and the other to an excess of lymphocytes. The granular or myelogenous variety is in my experience much the commoner disease.

The diagnosis of myelocytæmia is very often the result of some accidental discovery of the patient, a pain in the left side due to inflammation about the spleen, or the actual discovery of splenic enlargement. At times the knowledge of excessive bleeding after a minor operation leads the sufferer to seek advice; mostly the condition is diagnosed as the ultimate finding of the thorough investigator.

If the blood be examined, the diagnosis is relatively easy in the well developed case. There may be anæmia, not necessarily in the early stages of the disease. The presence of the various kinds of nucleated red cells is at times a feature.

In advanced forms there is always severe anæmia of a secondary type. The white cells are enormously increased in a typical case, but these may fall to a lower count than normal in various stages of the disease, and particularly after X ray therapy. One of the warnings in treatment by X rays is the tendency to a sudden leucopenia.

The white count varies from 100,000 to even one million. The highest count I have actually seen is 366,000 and the lowest is just over 4,000 per cubic millimetre.

The essential feature of the blood is the enormous number of myelocytes of all kinds, neutrophile, eosinophile and basophile, and the number of the ordinary polymorphonuclear cells also is greater than normal.

An enlarged spleen and a blood picture such as has been described will leave no doubt as to the diagnosis, and no other data are required.

Chronic lymphatic leucæmia may not be so easily diagnosed. It is usually accompanied by a generalized enlargement of lymphatic glands and there may be lymphomata in the skin, or even a Mikulicz's syndrome. The blood shows an increase of small lymphocytes and the

white cell count may reach a very big figure. I saw a patient a couple of years ago with a white count of over 600,000. The percentage of lymphocytes is very considerable, and may be over 90%.

The disease is insidious and is usually accompanied with anæmia and general weakness, and sometimes with enlargement of the spleen and liver.

The diagnosis is usually easy, and the only conditions likely to be confused with a lymphatic leucæmia are gland tuberculosis and glandular fever. Gland tuberculosis is extremely rare in Queensland, and I have already mentioned the case of glandular fever.

It has to be noted that acute lymphatic leucæmia has been known to become chronic.

Chloroma is an extremely rare disease which is characterized by the presence of a leucæmia with tumour formation associated mostly with bone and particularly with the bones of the face, and the tumours have a greenish coloration. The diagnosis may be absolute if the blood changes are characteristic of leucæmia and there are tumours of the bones of the face. There may be proptosis.

Barlow's disease may resemble it, and in odd cases a hypernephroma with metastases may be difficult to differentiate. It is difficult to know whether the disease is an acute leucæmia or one of the chloromas, lymphatic or myelogenous. The clinical course is almost identical; anæmia, stomatitis, fever, hæmorrhages and other signs are much the same. The disease is rapid and invariably fatal in a few months.

EUSTACE RUSSELL, M.D., M.R.C.P. (Edinburgh),
Honorary Physician, Brisbane Hospital.

British Medical Association News.

MEDICO-POLITICAL.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Robert H. Todd Assembly Hall, British Medical Association Building, 135, Macquarie Street, Sydney, on March 19, 1931, Dr. GEORGE BELL, the President, in the chair.

Advertising.

The Honorary Secretary, Dr. R. H. Todd, explained that the meeting had been called for the purpose of considering the rules of the Branch in regard to advertising. The motion to be put before the meeting was the result of a direction to the Council from a previous general meeting of the Branch. The by-law in existence dealing with the question of advertisement was as follows:

9. (a) No member shall be a party to the appearance of a notice of his life in the public press.

(b) No member shall insert any advertisement relating to his profession or the practice thereof beyond an announcement of change of address or commencement of practice.

(i.) An announcement of "change of address" shall take the following form:

"Dr. (or 'Mr.') A.B. has changed his address from to....."

(ii.) An announcement of "commencement of practice" shall take the following form:

"Dr. (or 'Mr.') A.B. has commenced practice at....."

(iii.) Every such advertisement shall be "run on" without spacing and without display.

The type shall be that ordinarily used for articles, and not larger than that used for the leading articles of the newspaper in which it is inserted. No more space shall be given to the advertisement than that required for printing the same. The name shall be in the same type as the rest of the advertisement. Letters or abbreviations, or

words indicating medical, surgical or other qualifications shall not be added, nor the name of any qualifying body or university or college. Nor shall any specialty be mentioned. Telephone numbers shall not be stated, nor hours of consultation.

- (iv.) The number of insertions of any such advertisement shall not exceed six, and such insertions shall be in consecutive issues of the paper.
- (v.) Such advertisement shall not be inserted except in papers published at the place of practice.
- (vi.) In an announcement of "change of address" or "commencement of practice" the words "in partnership with Dr." or "as assistant to Dr." may be added where appropriate.
- (vii.) Where a practitioner changes his address from one place to another in the same town, no more than one such change of address in any one year shall be advertised.
- (viii.) Advertisement of change of address or commencement of practice by members in the metropolitan area shall be limited to the Sydney morning dailies.
- (ix.) For the purposes of this By-law "change of address" shall mean "change of place of practice within New South Wales."

"Commencement of practice" shall mean "commencement of practice in New South Wales."

In introducing the subject, Dr. Todd referred to the statements of Saundby in his well known book on the conduct of practice. He explained that in no other part of the world was such latitude allowed in the matter of advertisements as was allowed in Australia. He said that the ruling of the General Medical Council of Great Britain was quite definite on the matter. The American Medical Association also held similar views and had stated that it was unprofessional to employ any methods to attract the attention of the public. The third section of the motion which he intended to move, was similar to the warning notice of the General Medical Council. The New South Wales Medical Board was bound to follow the General Medical Council. He had no doubt that from the legal point of view it was infamous conduct in a professional respect to advertise in the newspapers. On behalf of the Council of the Branch he moved as follows:

9. (a) No Member shall be a party to the appearance of a notice of his life or the publication of his portrait in the public press.

(b) No Member shall insert any advertisement relating to his profession or the practice thereof.

(c) No Member shall advertise, whether directly or indirectly, for the purpose of obtaining patients or promoting his own professional advantage; or, for any such purpose, shall procure or sanction or acquiesce in the publication of notices commending or directing attention to his professional skill, knowledge, training, services or qualifications or depreciating those of others; or shall be associated with or employed by those who procure or sanction such advertising or publication.

Dr. H. R. SCRIVENER asked whether the motion had anything to do with door plates.

Dr. Todd replied that door plates came under a different category and were not included in the motion.

Dr. NEVILLE DAVIS, speaking on behalf of junior members, thought that the motion was rather hard on men starting practice. He had come to the meeting prepared to oppose the motion; but after hearing Dr. Todd's remarks, he thought that the Council was doing the right thing. At the same time he thought that something should be done in the matter of announcing specialties on door plates, announcements in the social columns of newspapers and by wireles.

Dr. JOHN STOREY referred to the question of oblique advertising and said that at the discussion at the previous

meeting it was this question that had influenced him in moving the original motion dealing with the matter. He could see no harm in advertising starting of practice or a change of address. They had all done it in their younger days. If the motion were adopted he feared that there might spring up a tendency to advertise which was far less appropriate than that at present allowed. In this way the honest man would suffer and the unscrupulous person would find some means of self advertisement. He asked Dr. Todd whether he could state definitely that advertising of any sort was infamous conduct in a professional respect; if it were, he would, of course, vote for the motion.

Dr. Todd replied that he could see no other interpretation of the rule of the General Medical Council.

DR. COTTER HARVEY said that the motion seemed to lack a sense of proportion, if not a sense of humour, and gave colour to the statement that medical ethics were a means whereby older practitioners prevented younger practitioners from encroaching on their practices. Senior men had abundant opportunities of advertising either advertently or inadvertently, while the younger men were continually pounced upon. He thought that if the motion were passed, some of the younger men might not join the British Medical Association until they were established in practice.

In his reply Dr. Todd again stated that the question of name plates was irrelevant. At the same time he thought that they were disgraceful and he wished that the Branch would take the matter in hand. He did not think that it would do the young man any harm to prevent him from putting an announcement of his starting practice in the daily newspaper. He could not imagine that patients would be attracted by this means. No old member would wish to steal the young man's thunder, and they had to have some rule that indicated the attitude of the profession. The use of advertisements brought the medical profession down to the level of a trade; the only thing to do was to abolish advertising altogether.

The motion was carried by the requisite majority.

Employment of Agent or Canvasser.

It was resolved on the motion of Dr. R. H. Todd, seconded by Dr. F. Brown Craig:

That By-law 17, which reads:

17. No Member shall employ or sanction the employment of any agent or canvasser for the purpose of procuring persons to become his patients.

be amended to read:

17. No Member shall canvass or employ any agent or canvasser for the purpose of obtaining patients; or shall sanction or be associated with or employed by those who sanction such employment."

Workers' Compensation Act.

Dr. R. H. Todd moved:

That the following sub-clause be added to By-law 25 [Position of Practitioner (Medical Examiner) Examining on Behalf of Interested Persons a Patient under the Care of Another Practitioner (Medical Attendant)], namely:

(i.) (a) The medical examiner shall not, except with the express consent of the medical attendant previously obtained, prescribe for or otherwise advise or treat the patient.

(b) In the case of the examination of a worker by a medical practitioner selected by the employer under the provisions of the *Workers' Compensation Act, 1926-29, S. 10 (6) (b)*, or any amendment thereof, the medical examiner shall not undertake the immediate treatment of the worker patient, except with the consent of the medical attendant previously obtained.

(Note.—New South Wales Workers' Compensation Act, 1926-29, S. 10 (6) (b): "Where a worker receives medical treatment for an injury his employer shall be entitled to cause an examination of the worker to be conducted in consultation with the person who afforded such medical treatment by a legally qualified medical practitioner selected by the employer.")

He explained that these amendments had been suggested because many medical practitioners found that their patients were spirited away from them. It had been thought advisable to add to the rules something that would have direct application.

The motion was seconded by Dr. Walter C. McClelland.

On being called upon by the President to speak to the motion, Dr. C. H. E. Lawes explained that the first section had to do with an insurance company adviser and that the second related to a medical man called in by the employer.

The motion was carried.

Procedure in Ethical Matters.

DR. R. H. TODD moved the adoption of by-laws governing ethical matters and procedure therein. He explained that the rules had received the approval of the Central Ethical Committee in London and had been sent to the several Branches in Australia for adoption. The motion was carried.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

Roberts, Charles Eric Elphinstone, M.B., 1930 (Univ. Sydney), Kembla Street, Wollongong.

The undermentioned has been elected a member of the Victorian Branch of the British Medical Association:

Reed, Joseph Clynton, M.B., B.S., 1929 (Univ. Melbourne), Children's Hospital, Carlton, N.3.

Public Health.

CANBERRA CANCER CONFERENCE.

THE second Australian Cancer Conference was held at Canberra on March 26 and 27, 1931. A significant feature of this gathering was the fact that it was the first Australian conference to be held in the Institute of Anatomy, a monumental building which the Commonwealth Government has erected at Canberra for the purpose of the specialized study of the anatomy of all vertebrate animals in relation to the structure, functions and disease of the human body.

The gathering included representatives from all the States, the names of the delegates being as follows:

Dr. J. H. L. Cumpston, Commonwealth Department of Health (Chairman), Dr. M. J. Holmes, Commonwealth Department of Health, Dr. R. W. Cilento, Commonwealth Department of Health, Dr. R. Dick, New South Wales, Dr. E. Robertson, Victoria, Dr. J. Coffey, Queensland, Dr. E. Angas Johnson, South Australia, Dr. R. E. Atkinson, Western Australia, Dr. J. F. Gaha, Tasmania. These are members of the Federal Health Council.

New South Wales: Sir Alexander MacCormick, Dr. H. G. Chapman, Dr. F. P. Sandes, Professor O. U. Vonwiller, Dr. E. H. Molesworth, Dr. H. M. Moran, Dr. R. H. Kenny, Dr. A. T. Nisbet, Dr. Leila Keatinge, Dr. Arnold, Newcastle, Mr. T. Wilkins, Consulting Engineer, Sydney.

Victoria: Professor T. H. Laby, Dr. W. Cuscaden, Dr. H. Flecker, Dr. N. T. Bull, Dr. Robert Fowler, Dr. J. Clendinnen, Dr. J. O'Sullivan, Dr. T. F. Ryan, Dr. Kaye Scott, Dr. A. J. Trinca, Mr. A. H. Turner.

Queensland: Dr. J. V. Duhig, Dr. L. M. McKillop, Captain E. R. B. Pike.

South Australia: Dr. F. S. Hone, Dr. B. S. Hanson.

Western Australia: Dr. Margaret Bromhall.

Tasmania: Dr. V. R. Ratten.

This gathering, though only the second Australian conference, was actually the fourth meeting of representatives from the different cancer organizations since the commencement of the Australian Cancer Campaign. The first two meetings were of an Advisory Council convened by the Minister for Health of the Commonwealth, being followed by the first Australian Cancer Conference in 1930. The conference just concluded was notable in certain important directions.

Upon the establishment some years ago of a cancer campaign in Australia, efforts in the various States were, of necessity, individual and without any form of correlation. The purchase of radium by the Commonwealth Government and the engagement of Dr. Burrows as expert adviser enabled the first steps towards unity of action to be taken, and the Commonwealth Government, in imposing certain conditions upon the loan of the radium which was distributed to the various hospitals, made possible the first steps towards cohesive purpose. Criticism has from time to time been made that the progress towards unity of action and purpose has not been sufficiently rapid and that even now the organization on an Australian basis is not sufficiently complete, but those who attended the conference, unanimously expressed their feeling at its conclusion that the progress which had been made throughout the Commonwealth towards this end had been remarkable and in itself formed a great encouragement to those who were engaged in the work.

In all States the application of all modern recognized methods of treatment against cancer is in most active operation. Every State brought to the conference a record of very considerable progress during the year and a notable degree of success in the results obtained. While this was so, the conference nevertheless found opportunities to make certain suggestions for further development during the forthcoming year. Some of these suggestions are incorporated in the resolutions which are given below and all of them will be acted upon by the Department of Health steadily throughout the year, so that the progress towards practical correlation should be still further advanced.

The valuable work which had been done by Dr. Burrows during his stay in Australia had brought progress in the different States to a point at which a definite and significant review could be made of the actual advance in each section of the work. This review was made after a personal visit to each of the States by Dr. Holmes, who presented a progress report to the conference. At the conclusion of his report Dr. Holmes summarized the position as follows:

There has been brought within the reach of all in Australia who suffer from cancer, the most modern and successful methods of treatment.

In the past two and a half years 4,373 patients have received treatment with radium at the several organized treatment centres for various malignant and other conditions.

Of 1,669 patients treated for carcinoma (excluding rodent ulcer) in the two years ended June 30, 1930, 682 or 41% have suffered no recurrence of symptoms, and as far as can be stated, bearing in mind the limited period since treatment was completed, are apparently cured.

The results of rodent ulcer and diseases of doubtful malignancy are a great deal better. Allowing for all limitations, it may be said that the results are beyond expectation gratifying.

As regards the work of the treatment centres, increased attention should be paid to the fostering of the consultative clinic system, and in those hospitals where such clinics do not yet exist, it is urged that early steps be taken to form them.

Statistics were also presented showing the mortality from cancer in the Commonwealth during the last ten years. These statistics are summarized in the following

table and the advance in cancer mortality during the last ten years, notwithstanding the active measures which have been introduced, arrested the serious attention of the conference.

DEATHS FROM CANCER, AUSTRALIA, 1920-1929.
(Rates per 100,000 Mean Population.)

Year.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
1920	81	91	79	90	82	73	84
1921	84	85	79	92	85	84	87
1922	85	100	86	95	89	87	91
1923	84	102	83	95	76	77	89
1924	93	101	80	96	90	92	93
1925	94	98	81	93	81	92	92
1926	93	101	88	95	90	88	94
1927	93	100	82	93	88	103	93
1928	94	107	84	100	86	78	96
1929	95	107	88	109	92	96	98

The following principal resolutions were passed by the conference:

This Conference reaffirms the recommendation of the First Annual Conference in reference to the development of consultative clinics, and urges the importance of early action for the formation of such clinics where these do not yet exist.

This Conference affirms the necessity for the provision at every cancer centre of a reliable system for following up patients after treatment for as long as is necessary to accurately determine the end results of treatment and for regularly recording progress.

This Conference directs the attention of the authorities at all hospitals using radium to the necessity for providing adequate protection both for patients and staff, and for insuring that adequate precautions are actually taken against the dangers associated with exposure to radium. It recommends that at each hospital using radium action be taken to determine the practical adequacy of the protective measures in use at the hospital.

This conference affirms the essential importance of detailed statistical investigation of cancer mortality and morbidity, including the results of treatment, and urges all institutions and authorities concerned to devote special attention to the accurate collection of statistical data.

It strongly recommends the Commonwealth Government, notwithstanding the present financial stringency, to enable the Commonwealth Department of Health to collect and publish periodically consolidated statistical studies showing progress in respect of both morbidity and mortality of cancer for the information and guidance of technical workers.

It is considered desirable by this Conference that death certificates should, in the case of death from cancer, contain provision for stating, where possible, the pathological classification of the malignancy from which the patient has died.

In the opinion of this Conference steps should be taken to ascertain from the members of the profession throughout the States whether or not the time has arrived to make cancer a notifiable disease. This Conference refrains from expressing any opinion on the question.

This Conference commends to the Commonwealth Department of Health the suggestion that the possibility of the introduction of a diploma of medical radiology and therapeutics be discussed with the universities having medical schools, through the faculties of medicine, and in doing so the Conference urges that the Department of Physics be intimately associated with the introduction of this diploma.

This Conference suggests that those in control of cancer treatment in the different States be asked to investigate the possibility of a general educational campaign throughout the Commonwealth.

It is a strong recommendation of this Conference to all institutions and practitioners concerned, that in all X ray treatments an ionometer be used to measure the dose actually delivered, that all doses be recorded in ionometric units with adequate description of the quality of the radiation used, and that steps be taken in each State to secure the calibration of such measuring instruments.

This Conference recommends to each State organization the desirability of studying the effects of contraceptive agents in relation to the causation of uterine cancer and the preparation of reports for consideration at the next conference.

The following are the recommendations of the Case Records Subcommittee:

This subcommittee recommends the general adoption of the Melbourne Hospital modified case sheet, subject to certain specified amendments.

This subcommittee is strongly of the opinion that the standard case sheet should be used by all cancer treatment centres throughout Australia.

This subcommittee is of the opinion that, for the sake of uniformity, the printing of these various forms should be carried out as heretofore by the Commonwealth.

The subcommittee appointed by conference to report on the matter of the protection of radium workers against dangers associated with exposure to radium, recommended as follows:

It is desirable that Australian users of X ray diagnostic and therapy equipment should be in a position to have their installation inspected for X ray and electrical risks, as is done in Great Britain by the National Physical Laboratory. Such an inspection service would need to be carried out by the Commonwealth Department of Health or some other body which would organize the inspection service and bear so much of the cost as was not defrayed by the user of the X ray equipment.

This subcommittee is of the opinion that the Commonwealth Department of Health, now that it has overcome the initial difficulties of providing cancer treatment by radium, could with great advantage assist in improving the facilities for the treatment of cancer by X rays.

At the conclusion of the conference, when for a brief period its work was reviewed, two outstanding impressions were unanimously voiced. The first of these was that not only had the progress which had been made by this concerted national Australian campaign against cancer during the last four years been most remarkable, but that the spirit of the conference, the standard of work reported and the optimism which those engaged in the treatment of cancer expressed, were most encouraging. Notwithstanding this progress, it was felt very definitely that the most important aspect of the treatment of cancer was early diagnosis, and the most important person in any campaign which is directed against cancer, is the general practitioner, whose assistance must be secured and to whom assistance must be very fully rendered if the campaign is to be completely successful.

A full report of the proceedings of the conference will shortly be published by the Commonwealth Department of Health.

Obituary.

DAVID THOMAS.

DR. DAVID THOMAS, whose death was announced in a recent issue, was born at Tregaron, Wales, in 1861. He

was the son of Evan Thomas, farmer. He left school at the age of twelve and worked with his father on the farm. At the age of fifteen he broke his thigh and found that he could not follow the plough. It was at this time that his uncle, who was a bishop in Wales, insisted that the boy should go to England to study. The uncle formed his opinion of the boy's ability when he was worsted in an argument about a biblical question—young David Thomas had an extraordinary knowledge of literature for one so young. He could not speak English, but soon learned it, and went to the London Hospital to start the study of medicine at the age of eighteen. In 1884 he qualified and became a member of the Royal College of Surgeons of England and later a licentiate of the Royal College of Physicians of London. He continued his work at the London Hospital and was house surgeon to the late Frederick Treves. His interest in surgery was aroused and he gained his fellowship of the Royal College of Surgeons in 1887.

After gaining his fellowship, Thomas sailed for Australia. He came to New South Wales, and after spending short periods of time at Summer Hill and Kogarah, he settled in Manly, where he remained until his death. He identified himself with the whole life of the place; in later years scarcely any public venture was set going without his *imprimatur*. He was the originator of the movement that resulted in the establishment of the Manly District Hospital. This was in 1896. He became the senior medical officer and filled the office with conspicuous ability until he resigned shortly before his death. His surgical work was sound and his reputation spread to distant parts—he was often referred to as the "MacCormick of Manly." Younger men deferred to him and respected his judgement. It could scarcely be otherwise, for he had a personality that could not fail to impress his neighbours, he kept his knowledge up to date and he understood human nature.

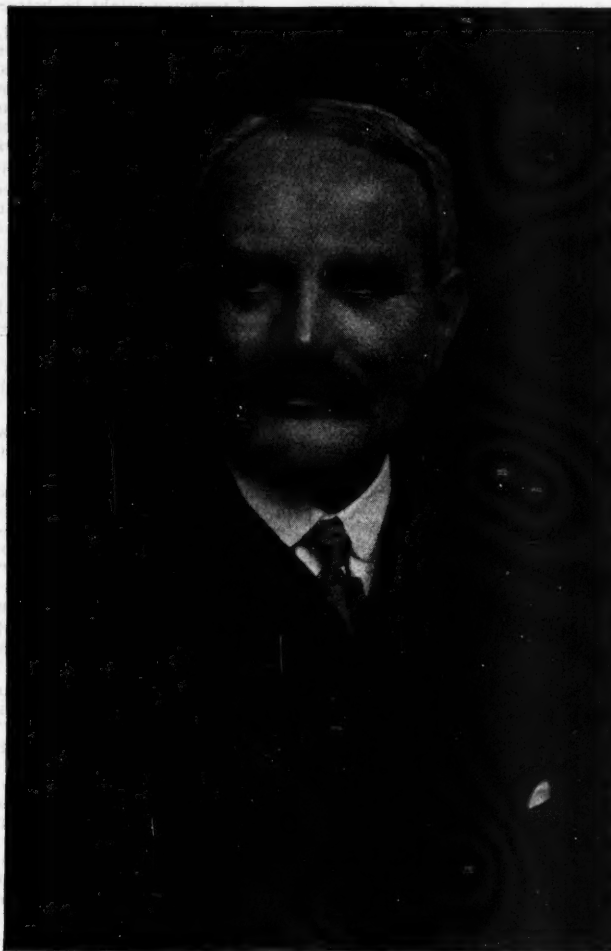
When war broke out in 1914 Thomas was not long in offering his services. He became medical officer of the troopship *Moravian* and in 1915 joined the Royal Army Medical Corps. He was made a member of the Scottish Travelling Medical Boards and held the rank of Lieutenant for sixteen months. After his return to Australia he became Repatriation Medical Officer and held the position for many years. He was an enthusiastic member of the British Medical Association. He held office in the New South Wales Branch and was President in 1914. In medical practice he was a firm believer in the principle of friendly society lodge practice. The lodges knew it and often sought his advice. He was Government Medical Officer in Manly and an alderman of the suburb from

1905 to 1908. He was attached to almost every sporting body in Manly. His chief interest was in golf and he was in turn President, Captain and Patron of the Manly Golf Club; he was made an honorary life member in 1925.

From this short account of the life of David Thomas it will be seen what manner of man he was. He was highly regarded by the members of his profession far and near—so much so that he was invited to become one of the Foundation Fellows of the College of Surgeons of Australasia. He bore his last illness with courage and the end came peacefully. He leaves a widow and two sons, medical practitioners at Manly, to whom much sympathy has been extended.

Professor R. Fairfax Reading writes:

David Thomas had a strong personality; we all have our weaknesses, his were few and small and the enumeration of his many good qualities would require much space. He made many friends without any effort on his part; his sympathetic and cheery disposition were the attractions apart from any professional ability or sense of gratitude on the part of his patients. Like many others, he was self-sacrificing in the interest of his patients, too much so, for his health suffered in consequence on more than one occasion. A strong man of positive views and sound judgement, he naturally differed from others at times on matters of policy, but though impetuous and sometimes hasty, was always ready to admit a fault. His aim was always the betterment of the community, for which he was ever ready to put up a fight. Nothing was too much trouble if the result was to be a public benefit. Always ready to help the young practitioner, he was big enough and generous enough to be genuinely pleased to see the younger men successful, even in his own district. During a friendship extending over



thirty-five years I have often heard him express such pleasure, and he meant it. Generous, to those who needed help but were not in a position to pay, not merely in the matter of fees, but also extra work in a very busy life, he naturally occasionally found his generosity abused; but even then he was lenient in his judgement of his fellow man and tried to find an excuse for him. His sense of humour was so well developed that he was more likely to have a good laugh at his own expense than abuse the offender. Those who knew him, will appreciate how difficult it is to do justice to his memory without appearing effusive; no pen picture could do him justice. Those who did not know him, may be able to realize from these few lines what a fine type of man the profession has lost. We know and admire many men for their attainments, but David Thomas was also admired and appreciated for his

lovable personality by all who had the privilege to know him intimately. Others can speak with more authority than I of his professional life and attainments; I prefer to think of and remember him as the best gift a man can have—a loyal friend.

Dr. A. Holmes & Court writes:

Manly mourns the passing of David Thomas. For many years he held a dominant position in the affairs of the district in which he worked, well beloved by patients and friends, and retaining the respect of the whole community in which he lived.

Possessed of a strong and forceful personality, with a genial heart and intense love of his fellow man, he laboured greatly and achieved much. Intolerant of insincerity and imposture, he was ever ready to help those who needed help, and earned the gratitude and regard of patients, rich and poor alike.

The establishment and development of the district hospital were largely due to his untiring efforts, and the efficiency of this institution remains as a memorial of his devoted and unsparing efforts in the cause of the sick poor. In this, as in all things, he strove to maintain the honour and ideals of his profession, never stooping to sacrifice principle to expediency.

Smitten at the height of his powers with a disabling and protracted illness, he faced trouble "with the courage that becomes a man," bearing the trials of invalidism with fortitude and patience, happy in the knowledge that the inspiration of his work and ambitions was faithfully handed on to his loyal and devoted sons. *Vale!*

JOHN ADRIAN LYNCH.

We regret to announce the death of Dr. John Adrian Lynch, which occurred on April 10, 1931, at Malvern, Victoria.

Correspondence.

THE HOSPITAL PROBLEM.

SIR: The solution of the "Hospital Problem," published in THE MEDICAL JOURNAL OF AUSTRALIA, September 20, 1930, page 393, would be unworthy of consideration if it drooped under the fiercest, let alone the kindest, criticism offered by Dr. Meyers, of Brisbane, in his letter to your journal, February 7, 1931, page 184.

Dr. Meyers writes:

1. No government in Australia would be willing to impose on the general public a statutory liability of one shilling (1s.) per week per wage earner for a sickness scheme.

To that statement I would like to add: "till the general public have been educated to the wisdom of such a course."

The truth is that the people, the parliaments, and a majority of the medical profession know very little about it. Every step taken in hospital reorganization is a step of expediency, taken to adjust some immediate requirement.

Health is the most important asset of the nation. Upon health our happiness and prosperity depend.

One shilling per wage earner per week throughout the Commonwealth amounts to six and a quarter million pounds per year. In the last financial year—a year of depression—the people of Australia spent £34,832,300 on alcohol, approximately £50,000,000 on motor transport, and (?) £10,000,000 on tobacco. Surely the most important asset of the nation is not always to be the Cinderella of the national and the family budget. If the public adopt this attitude, the inattention of the medical profession to public questions is one very real reason.

The public do not regard one shilling per week as an unreasonable amount. Voluntary contributory schemes are now in operation in Queensland with payments fixed at sixpence to one shilling per member per week for

hospital treatment (Queensland Hospital Commission's Report, page 27). Fluctuations in the basic wage will naturally influence the payments.

2. It is likely there would be opposition to such a scheme from within the profession . . .

The proposed plan of insurance has been developing in Victoria for five years. It has met with neglect, incredulity and opposition, till the principles of it find a very ample measure of support among those within and without the Council. Severe criticism has not damaged it; such has improved it. The harder the criticism, the more it should improve.

3. Some plan designed upon a more gradual mode of progress might be better . . .

Any change will be achieved, not by a stroke, but by a process. As an alternative to the present process of drift leading to socialization of medical service, I suggest an objective which may be reached by a process of inquiry and education of the public and the profession. I believe that free choice of doctor is of paramount importance to all parties. This cannot be maintained by socialization.

4. One principle put forward by the Queensland Branch of the British Medical Association has been that all classes of the community should assist in the upkeep of hospitals.

It is interesting to note that the Royal Commission who have lately presented their report, have urged the Government that this principle should apply in financing hospitals and that the contribution from wage-earners is to be one penny in the pound per week.

The fact of making this payment gives no right to hospital treatment, in the opinion of the Royal Commission.

The first of these statements is in accordance with the principles of the plan set out in THE MEDICAL JOURNAL OF AUSTRALIA, September 20, 1930.

Inquiry seems to indicate that the provision anticipated in the second statement will be adequate only to pay for part of the nursing cost—no adequate consideration seems to have been given to the influence of growing demand for public hospital service, the vanishing avenues of employment for the trained nurse as this expansion of public hospitals occurs, or payment for medical service.

The opinion of the Commission, in the third statement, is quite contrary to policy and precedent in England; whence most of our practice in hospital finance has sprung.

The Pay Beds Committee of King Edward's Hospital Fund (the ruling hospital authority in London) made the following statement in 1928: "That the general wards of the voluntary hospitals should be thrown open to all of moderate means on the same terms and conditions as the necessitous (the sick poor), no payment for medical treatment being allowed. The wealthy should be catered for in pay rooms, private wards and attached nursing homes" (*The British Medical Journal*, August 18, 1928, page 320).

"As a general principle no surgeon or physician should receive a fee till the full cost of maintenance has been paid" (*The British Medical Journal*, September 15, 1928, page 511).

Under the *Local Government Act*, 1929 (England), the municipalities are obliged to conduct municipal hospitals with paid medical staffs, for the use of all classes in the community.

Mr. Neville Chamberlain, Minister of Health (Conservative) stated (1928): The admission of patients to hospitals should be determined by their illness and not by their financial position.

The Council of the British Medical Association in England states that the public hospitals "have become a highly specialized and complex service to which four-fifths of the population look for help and where the community as a whole claims as a right services which can only be rendered by a great organization or its dependent branches."

The Association classifies the claimants for treatment as: "10% to 15% indigent, 80% to 85% legitimately provided for by some contributory scheme or agency, and

5%, not more, able to pay for medical or nursing service" (*The British Medical Journal*, April 19, 1930, page 151, Supplement).

The British Medical Association in England simply sanctions what has happened without its consent, and as far as is discernible the same public demand is insistent throughout the Commonwealth. Legislatures give effect to public demands. It seems that in Australia they will follow the English course. The services of the public hospitals will be the right of the taxpayers in exchange for the tax just in the same way as in England the voluntary hospitals are at the disposal of the people in exchange for the payments of the contributing schemes.

5. It is possible that the best system would be one of a paid resident and consulting medical, as in some municipal hospitals in England.

This is the great medical question that is before the Australian people and medical profession today. Will the medical profession be in future (a) the paid servants of the institutions or (b) the servants of the individual patients whom they care for?

Dr. Meyers suggests method (a). Method (b) is expounded in the scheme set out in *THE MEDICAL JOURNAL OF AUSTRALIA*, September 20, 1930, because:

(i) The free choice of doctor is the most cherished possession of the patients. Ills are as much psychical as physical. Courage and recovery are dependent on faith. Do the people desire a service as impersonal as the railway or tramway service, where the requirement of the user must conform to the schedule? Does anyone wish to establish a system where patients enter unquestioning at one end and come out "cured" or otherwise at the other. The bigger the hospital and city, the more likely is this to occur. I do not believe the community desire this.

(ii) Among the medical profession (nationalized or institutionalized) efficiency gives way to seniority; there is loss of initiative and competition; remuneration is "fixed" for an unrestricted service; salary will reduce all to a common level and will be reduced to the lowest level possible for purposes of economy.

Will this maintain good service? The method to be adopted will depend upon the efficiency of the service it will create and maintain, always provided the population are well enough informed to understand what they are doing. This depends in turn upon the willingness of the medical profession as a whole (and not upon a few of its already overworked councillors) to elevate their minds to the dignity of the task that lies before them.

In conclusion I wish to say how well I appreciate Dr. Meyers's great personal contribution in the State and Federal spheres towards the solution of this problem.

Yours, etc.,

D. M. EMBELTON.

37, Collins Street,
Melbourne,
March 15, 1931.

TRICHOMONA VAGINALIS.

SIR: With reference to Dr. Woodward's letter in the journal of March 21.

There is a most excellent article on this subject by Bland Goldstein and Wenrich in *The Journal of the American Medical Association* of January 17, 1931. The authors give over fifty references in the literature and discuss the treatment, but state that "no satisfactory type of treatment had been found."

I have tried most of the methods of treatment which have been advocated, but with only varying success. I have found that the skin around the anus and introitus should be shaved in every case. This is a most important point. I have tried painting the skin and vagina with 10% solution of mercurochrome and then inserting a tampon soaked in the same solution and left for twenty-four hours. This treatment was repeated three times a week, but the results for a time were good, but the cases relapsed. I then used Bonney's blue paint instead of the mercurochrome, with perhaps a little better result. I have given a good trial to the dry treatment of instilling

kaolin into the vagina, but the results were not good. I have found that the best result and the easiest type of treatment was that advocated by Rodecurt (*Zentralblatt für Gynäkologie*, Number 33, 1929). He reported excellent results and recommended the insertion into the vagina each night of a pill of "Yatren 105." The "Yatren" killed off the trichomonæ and the discharge after a few weeks disappeared.

I would recommend Dr. Woodward to try this treatment on his patient. The patient can insert the pills herself and so save the various visits to the doctor.

Yours, etc.,

BRIAN H. SWIFT.

193, North Terrace,
Adelaide,
March 24, 1931.

WORKERS' COMPENSATION INSURANCE PRACTICE IN NEW SOUTH WALES.

SIR: May I be permitted to support Dr. Ryan (*THE MEDICAL JOURNAL OF AUSTRALIA*, April 4, 1931) in his contention that many disputes between we practitioners and the insurance companies would have been avoided had the companies "had the honesty to stand up to the agreement entered into in Schedule 'D'."

By way of doing so I would quote an actual case, one of several, from my own practice. D.C. was admitted to my hospital on September 12, 1930, with three badly crushed fingers—a quarry accident. I saw him daily at the hospital till the 19th. By careful fomenting and cyllin baths infection was avoided. On the 19th he was discharged from hospital and I saw him on the 20th, 21st, 23rd, 25th and again on October 6. He returned to work some weeks later, and during this period I saw him from time to time, but as he was dressing the wounds himself no fee was charged. The account was rendered for £8 12s 6d. Had I charged the "customary charge made in the community for similar treatment" the account had amounted to £11 18s. 6d.

The insurance company replied that in view of the nature of the accident their medical officer considered that £5 5s. would be adequate remuneration. I am in a position to state that had this man not been insured his father would have paid my account (£11 18s. 6d.) in full on presentation. The company has refused to pay the account as rendered, and his father has made up the balance.

There is another aspect of the matter that calls for serious consideration. The action of some of the companies tends to place some of our country practitioners, and, I presume, some of our colleagues in the city, in a false position. When they take it upon themselves to say that we have paid unnecessary visits, our clients are able to judge for themselves how much justification there is for their statement, and no harm is done us as between ourselves and our patients, but when they quote the rates in Schedule "D" to the patient, they give the impression that we have been overcharging. May I illustrate? I have a patient residing just over two miles from my surgery, who has for eight years been meeting my accounts rendered at the usual rates. Now my fee for a visit to his house is £1 1s.; under the schedule it is 7s. 6d. I rendered my account in its usual form. The company, instead of communicating with me direct, wrote my patient quoting the schedule. He took the attitude that if I could afford to charge a fee like that to a wealthy company, I had been overcharging him, and I was put to some trouble to clear his mind of the misunderstanding.

I may say that so constant is the dispute that I do not now render accounts to any of the companies, except the State Office, which always gives one a fair deal. I look to my patients, giving them the benefit of the schedule rates, as far as the companies will meet them, and collect any balance from them.

Yours, etc.,

H. LEIGHTON KESTIVEN.

Bullahdelah,
New South Wales,
April 6, 1931.

Proceedings of the Australian Medical Boards.

VICTORIA.

THE undermentioned have been registered under the provisions of the *Medical Act*, 1928, Victoria, as duly qualified medical practitioners:

Rockett, Richard Hildreth, M.B., B.S., 1926 (Univ. Melbourne), 179, Thomas Street, Subiaco, Western Australia.

Bush, Frederick Keith, M.B., B.S., 1926 (Univ. Melbourne), Williamson Street, Bendigo.

Books Received.

FRACTURES AND THEIR COMPLICATIONS, by G. E. Wilson, M.B., F.R.C.S., F.A.C.S.: 1931. London: Baillière, Tindall and Cox. Royal 8vo., pp. 423, with illustrations. Price: 35s. net.

DISEASES OF THE TONGUE, by W. G. Spencer, M.S., F.R.C.S., and S. Cade, F.R.C.S., being the Third Edition of Butlin's "Diseases of the Tongue": 1931. London: H. K. Lewis. Demy 8vo., pp. 577, with 20 coloured plates and 123 illustrations in the text. Price: 35s. net.

Diary for the Month.

- APR. 28.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 APR. 30.—South Australian Branch, B.M.A.: Branch.
 APR. 30.—New South Wales Branch, B.M.A.: Branch.
 MAY 1.—Queensland Branch, B.M.A.: Branch.
 MAY 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.
 MAY 6.—Victorian Branch, B.M.A.: Branch.
 MAY 7.—South Australian Branch, B.M.A.: Council.
 MAY 8.—Queensland Branch, B.M.A.: Council.
 MAY 12.—New South Wales Branch, B.M.A.: Ethics Committee.
 MAY 14.—Victorian Branch, B.M.A.: Council.
 MAY 19.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
 MAY 22.—Queensland Branch, B.M.A.: Council.
 MAY 26.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 MAY 27.—Victorian Branch, B.M.A.: Council.
 MAY 28.—South Australian Branch, B.M.A.: Branch.
 MAY 28.—New South Wales Branch, B.M.A.: Branch.

Medical Appointments.

Dr. W. S. McGillivray (B.M.A.) has been appointed Deputy Commissioner of Public Health, Western Australia.

Dr. H. B. Gill (B.M.A.), Dr. R. H. M. Jull (B.M.A.) and Dr. E. Atkinson (B.M.A.) have been appointed to the Board of Management of the Perth Dental Hospital, Western Australia, for a period of three years commencing on March 1, 1931, pursuant to the provisions of *The Hospitals Act*, 1927.

Dr. J. B. Dawson (B.M.A.) has been appointed a member of the Board of Optical Registration, South Australia, under the *Opticians Act*, 1920.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes, sought, etc., see "Advertiser," page xiv.

PERTH HOSPITAL, PERTH, WESTERN AUSTRALIA: Radiologist and Radium Therapist (male), Junior Resident Medical Officers.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members desiring to accept appointment in ANY COUNTRY HOSPITAL, are advised to submit a copy of their agreement to the Council before signing, in their own interests. Brisbane Associated Friendly Societies' Medical Institute. Mount Isa Hospital. Mount Isa Mines. Toowoomba Associated Friendly Societies' Medical Institute.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

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